

RECEIVED

MAR 14 2002

MPCA, MAR Division  
& Landfill Remediation Section

**LIMITED SITE INVESTIGATION**

**FORMER VACANT PARKING LOT - MPCA  
1701 WEST LAKE STREET  
ST. LOUIS PARK, MINNESOTA  
MPCA SITE ID #: LEAK00008313**

**Terracon Project No. 41017023  
March 12, 2002**

*Prepared for:*

**MINNESOTA POLLUTION CONTROL AGENCY  
Majors and Remediation Division  
Petroleum and Landfill Remediation Section  
520 Lafayette Road North  
St. Paul, Minnesota 55155**

*Prepared by:*

**TERRACON  
3535 Hoffman Road East  
White Bear Lake, Minnesota 55110**

**Terracon**

March 12, 2002

# Terracon

3535 Hoffman Rd E  
White Bear Lake, MN 55110-5376  
(651) 770-1500 Fax: (651) 770-1657

Ms. Kathryn Serier  
Minnesota Pollution Control Agency  
Majors and Remediation Division  
Petroleum and Landfill Remediation Section  
520 Lafayette Road North  
St. Paul, Minnesota 55155

Re: Limited Site Investigation Report  
Vacant Parking Lot - MPCA  
7001 West Lake Street  
St. Louis Park, Minnesota  
Terracon Project No. 41017023  
MPCA Site ID #: LEAK00008313

Dear Kathryn:

Enclosed please our Limited Site Investigation report for the above referenced site. The report was completed consistent with Minnesota Pollution Control Agency (MPCA) Fact Sheet #3.24 and summarizes the results of assessment activities conducted at the site. These activities were authorized as part of work orders LTE-0135 and LTE-0213. The report recommends project closure. Please refer to the report for details.

Upon your authorization, a copy of this report will be forwarded to the current property owner. A second copy of our report has been included for the Superfund Unit and Voluntary Investigation and Cleanup Program.

We appreciate the opportunity to be of service to you on this project. If you have questions or comments regarding this report, please do not hesitate to contact our office at 651-770-1500.

Sincerely,  
**TERRACON**



Paul J. Wiese, P.G.  
Project Manager/Hydrogeologist

PJW/JMS:pjw N:\01\01\_7023\023\_3\_24RI-LTR-METH.DOC



## Leaking Petroleum Storage Tanks

Minnesota Pollution Control Agency

[http://www.pca.state.mn.us/programs/lust\\_p.html](http://www.pca.state.mn.us/programs/lust_p.html)

### Investigation Report Form

Fact Sheet #3.24

Complete this form to document remedial investigation (RI) activities, including Limited Site Investigations (LSIs) and full RIs. Do not revise or delete any text or questions from this report form. Include any additional information that is important for making a site cleanup decision. If only a LSI is necessary, you may skip Section 6 and Section 7 of this report form.

Refer to Minnesota Pollution Control Agency (MPCA) fact sheet 3.1 *Leaking Underground Storage Tank Program* for the overall RI objectives, and to other MPCA fact sheets for details on investigation methods. When a tank has been excavated, refer to fact sheets 3.6 *Excavation of Petroleum Contaminated Soil during Tank Removal* and 3.7 *Excavation Report Worksheet for Petroleum Release Sites* for reporting requirements. Document the occurrence of free product using fact sheet 3.3 *Free Product: Evaluation and Recover*, and fact sheet 3.4 *Free Product Recovery Report Worksheet*.

MPCA Site ID: Leak: **00008313**

Date: **March 12, 2002**

Responsible Party: **MPCA** R.P. phone #: **NA**

Consultant: **Terracon** Consultant phone #: **651-770-1500**

Facility Name: **Former Vacant Parking Lot - MPCA**

Facility Address: **7001 West Lake Street** City: **St. Louis Park**

County: **Hennepin** Zip Code: **55426**

Site location (**UTM required**; refer to [http://www.ot.state.mn.us/ot\\_files/handbook/standard/std17-1.html](http://www.ot.state.mn.us/ot_files/handbook/standard/std17-1.html) for spatial data standards):

Other location information

LAT: **44° 56' 18.5" N** LONG: **93° 21' 49.4" W**

State Plane coordinates (NAD 83): **15 471302 meters East, 4476179 meters North**

Former Vacant Parking Lot -- MPCA

Terracon Project No. 41017023

Investigation Report Form

April 2000

### Section 1: Emergency and High Priority Sites

- 1. Is an existing drinking water well impacted or likely to be impacted within a two-year travel time?  YES  NO
- 2. Are there existing vapor impacts?  YES  NO
- 3. Is there an existing surface water impact as indicated by 1) a product sheen on the surface water or 2) a product sheen or volatile organic compounds in the part per million (ppm) range in ground water in a well located close to the surface water.  YES  NO
- 4. Has the release occurred in the last 30 days?  YES  NO
- 5. Has free product been detected at the site? **If YES**, attach fact sheet 3.4 *Free Product Recovery Report Worksheet*.  YES  NO
- 6. Is sand or gravel aquifer impacted which is tapped by water wells within or potentially within 500 feet from the release source **or** does impacted soil overlie a geologically sensitive area? **If YES**, explain:  YES  NO

If you answered *YES* to any of questions 1 through 6 above describe below the actions taken to date to reduce or eliminate the risk posed by the release.

Former Vacant Parking Lot – MPCA  
Terracon Project No. 41017023  
Investigation Report Form  
April 2000

## Section 2: Site and Release Information

2.1 Attach Table 1 - Tank Information. Describe the status of the other components of the tank system(s), (i.e., piping and dispensers).

Tank information for the petroleum release identified as LEAK00008313 (the site) is unknown. Historical aerial photographs suggest that at least one aboveground storage tank (AST) previously occupied portions of the property currently owned by B & D Holdings LLC. What appears to be an AST is first visible on an aerial photograph taken in 1956. The observed AST was likely associated with one of the previous service station operators. The AST was not observed in a 1962 aerial photograph. Two above ground storage tanks are shown on a map dated March 14, 1955 that was approved by the St. Louis Park City Counsel prior to the construction of the service station. A permit for the demolition of the service station was issued on September 16, 1980. It is assumed that the under storage tanks (USTs) were removed at the time of the service station building demolition.

2.2a Describe the land use and pertinent geographic features within 1,000 feet of the site.

The site is surrounded by commercial and residential properties (Figures 1 & 7B). Retail facilities and offices are located immediately to the east, west, and north of the site. Residential areas are located further to the northwest. State Highway 7 is located directly south of the site. More commercial businesses are located south of the highway. One notable geographic feature is the NSP electric substation located to the southeast of the site and across Highway 7. Surface water bodies were not observed within 1,000 feet of the site.

2.2b List other potential leak sources within 500 feet of the site.

An active Holiday service station is located across West Lake Street to the west of the site. The Holiday service station (#206) is a former LUST site (LEAK 8367) that was closed on August 7, 1996. Also, the former Reilly Tar (Superfund site) is located further to the west. The site is located within the boundary of the Reilly Tar Superfund site. There is a monitoring well located in the parking lot north of Walker Avenue. The monitoring well is believed to be associated with the Reilly Tar Superfund site.

2.3 Identify and describe the source or suspected source(s) of the release.

The suspected source of petroleum contamination is the USTs and piping associated with the service station previously located on the site. The former Reilly Tar Superfund site is also a suspected source for the semi-volatile organic compounds detected in the ground water samples collected at the site.

2.4 What was the volume of the release? (if known): N/A gallons

Unknown.

2.5 When did the release occur? (if known): **Unknown. The service station was demolished in 1980 and apparently the USTs were removed at that time. Petroleum contamination was first encountered at the site on March 30, 1994 when soil borings were advanced for a Naegele billboard, which was previously located at the east end of the site near the railroad tracks.**

### Section 3: Excavated Soil Information

3.1 Include the Fact Sheet 3.7 *Excavation Report Worksheet* in Appendix A

3.2 Was soil excavated for off-site treatment?  Yes  No

Date excavated: N/A

Volume removed: N/A cubic

3.3 Indicate soil treatment type:

- land treatment
- thermal treatment
- composting/biopiling
- other ( )

Name and location of treatment facility:

Former Vacant Parking Lot – MPCA  
 Terracon Project No. 41017023  
 Investigation Report Form  
 April 2000

## Section 4: Extent and Magnitude of Soil Contamination

4.1 Were soil borings conducted in or immediately adjacent to all likely  YES  NO sources including:

dispensers,	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
underground storage tank basins,	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
above ground storage tank areas	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
piping,	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
remote fill pipes	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
and known spill areas	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

4.2 To adequately define the vertical extent of contamination, soil borings should be completed at least five feet below the water table or ten feet below the deepest measurable (field screening and visual observation) contamination, whichever is deeper. Were all soil borings completed to the required depth?  YES  NO

4.3 To adequately evaluate site stratigraphy at least one boring should be completed 20 feet below the water table. If a confining layer is present, drill the boring in an uncontaminated area. Was this done?  YES  NO

If you answered *NO* to any of the three previous questions, explain why the borings were not conducted in the required locations or to the required depths (see fact sheet #3.19, *Soil and Ground Water Investigations Performed During Remedial Investigations* regarding exceptions and MPCA approval for depth of drilling):

**Terracon utilized historical aerial photographs and reports to attempt to locate former AST, UST and dispenser areas. The area where the possible AST was located now appears to be occupied by the Goodyear Tire facility. The aerial photographs do not have sufficient detail to determine the location of the USTs, dispensers, or the existence of remote fill pipes for the USTs. GME Consultants, Inc.'s (GME) Phase II report dated May 1, 1995 indicates that the former UST basin was located east of the former service station building. The dispensers were located south of the former service station building (see Figure 2 and map in Appendix D).**

**Probes P-1 through P-7 were advanced using push probes. Probes P-1 and P-2 were advanced into the water table where photo-ionization detector (PID) measurements were less than one part per million (ppm). However, cave in of soil at the water table did not allow for the full five feet below the water table to be probed.**

Former Vacant Parking Lot -- MPCA  
 Terracon Project No. 41017023  
 Investigation Report Form  
 April 2000

Probe P-3 had a collapse of the probe hole at approximately 24 feet below ground surface (bgs). A discrete sampler was used to obtain a soil sample at a depth approximately at the soil/water table interface.

Probes P-4 through P-6 had problems with shallow hole collapses as well. Progress was slow and it was apparent that a drill rig would be necessary to obtain soil samples at depth. Furthermore, probes P-4, P-5, and P-6 were not in the proximity of the suspected location of the former UST's. Soil borings conducted by GME Consultants in April 1995 indicated that soil from near the suspected UST and dispenser locations had methyl tertiary butyl ether (MTBE) and benzene, toluene, ethyl benzene and xylenes (BTEX) concentrations below or only slightly above laboratory reporting limits. Taking the aforementioned circumstances into account, only water samples were collected for probe locations P-4 through P-6. Ground water samples were collected using a screen point sampler.

Probes P-7 and P-8 were also advanced using push probes. The steep, terraced topography in the Minnesota Department of Transportation right-of-way associated with P-7 and P-8 made access with a drill rig impractical. Probe hole cave in occurred at approximately sixteen (16) feet bgs for P-7 and P-8. Again, a screen point sampler was used to obtain a ground water sample.

Borings P-9 and P-10 were advanced using hollow stem augers in conjunction with a drill rig. Boring P-9 was conducted adjacent to the area suspected to contain the former USTs. Boring P-9 was advanced to a depth approximately nineteen (19) feet below the water table. It appeared that water and soil from above were effecting PID readings taken from soil sampled at depths below the water table. Soil sampling in boring P-10 was also halted due to the observation that contamination from higher elevations was effecting PID readings of soil gathered at lower depths.

- 4.4 Indicate the drilling method:
- hollow-stem auger
  - sonic drilling
  - push probes
  - other .

*Note: MPCA staff hydrologist approval is required before use of flight augers*

- 4.5 Discuss soil borings drilled and provide rationale for their locations. Attach boring logs in Appendix D.

Terracon advanced soil probes and hollow stem auger borings in June and November of 2001 in an attempt to delineate the extent of petroleum hydrocarbon contamination (Figure 2). During June 2001, Terracon advanced six probes (P-1 through P-6) using a Geoprobe sampling vehicle. Probes P-1 and P-6 were advanced in the vicinity of the

Former Vacant Parking Lot – MPCA  
Terracon Project No. 41017023  
Investigation Report Form  
April 2000

suspected UST location in an attempt to identify a possible source area. Probes P-3 and P-4 were advanced to assess the horizontal extent of contamination in the inferred downgradient direction. Probes P-5 and P-6 were advanced in the northeast and northwest corners of the property to assess the horizontal extent of contamination in the inferred side- to up-gradient direction.

Probes P-7, P-8, and boring P-10 were advanced in November of 2001 to further assess the extent of downgradient contamination. Hollow stem auger boring P-9 was advanced in November 2001 as well. Boring P-9 was advanced to determine the vertical extent of contamination adjacent to the suspected, former UST location.

- 4.6 Attach Table 2 - Results of Soil Headspace Screening, In Appendix C, discuss soil headspace screening method and describe any deviation from recommended and/or required methods and procedures.
- 4.7 Attach Table 3 - Analytical Results of Soil Samples. Provide analytical results in Appendix B. In Appendix C, discuss soil sampling and analytical methods used and describe any deviation from recommended and/or required methods and procedures. **See Table 3.**
- 4.8 Describe the vertical and horizontal extent and magnitude of soil contamination. Provide a plan-view map and two cross-sections that illustrate both soil head space and laboratory analytical results.

The inferred horizontal extent of petroleum related contamination in soil is illustrated in Figure 3. The horizontal extent of soil contamination for probe locations B-1 through B-3 and P-1 through P-10 cannot be defined by soil analytical results due to analyte concentrations below laboratory reporting limits. Soil boring B-4 contained detectable concentrations of gasoline range organics (GRO), diesel range organics (DRO), ethyl benzene, toluene, and xylenes at a sample depth of 34 feet to 36 feet. However, at 34 feet to 36 feet bgs it would appear that the contamination is likely associated with ground water. An attempt was made to identify areas of soil contamination on the basis of photo-ionization detector (PID) levels (Table 2). Soil samples from borings P-9 and P-10 contained PID readings of over 50 ppm occurring above a depth of 20 feet bgs. Higher PID readings were recorded for soil sampled at greater depths, however these readings appear to be associated with the soil/ground water interface.

As discussed above, soil samples from borings P-9 and P-10 exhibited PID readings greater than 50 ppm at depths above 20 feet bgs. These relatively elevated PID readings occur at approximately 8 feet to 10 feet bgs. PID readings initially decrease in samples below 8 feet to 10 feet bgs. PID readings then rise to higher levels at depths consistent with the soil/groundwater interface.

Former Vacant Parking Lot – MPCA  
 Terracon Project No. 41017023  
 Investigation Report Form  
 April 2000

**In general, significant areas of soil contamination were not identified. The site appears to be underlain by approximately 8 to 10 feet of sandy, fill material. PID readings were present at low levels for soil probes B-1, B-2, B3, B-4, P-3, P-7, and P-8. However, a pattern was not evident in the soil samples collected suggesting a possible source area(s).**

4.9 Attach Table 4 - Other Contaminants Detected in Soils (Petroleum or Non-petroleum Derived). Discuss the possible sources of these compounds. NA

4.10 Is contaminated soil in contact with ground water?  YES  NO

If YES or if ground water contamination appears likely, then complete Section 5.

If NO (contaminated soil is not in contact with ground water), what is the distance separating the deepest contamination from the surface of the water table? Was this distance measured during site activities, referenced from geologic information, or estimated based on professional opinion during a site visit? \_\_\_\_\_ feet

4.11 Describe observations of any evidence of a fluctuating water table and a seasonal high water table (e.g., mottling). Also, from other sources of information describe the range of natural water table fluctuations in the area.

**Significant mottling was not observed in the soils encountered during exploration. The material present at the water table depth is generally a well (SW) to poorly sorted sand (SP). Ground water has been observed to fluctuate between 32 feet and 36 feet bgs. GME Consultants encountered ground water at approximately 36 feet bgs during their April 1995 Phase II activities. Terracon encountered ground water at approximately 32 feet bgs during our June 2001 soil exploration, and at approximately 36 feet bgs during the November 2001 exploration (Appendix D).**

4.12 In your judgment, is there a sufficient distance separating the petroleum contaminated soil (or an impacted non- aquifer) from the underlying aquifer to prevent petroleum contamination of the aquifer? Please explain in detail. In your explanation, consider the data and information of this section as well as the nature of the petroleum release (i.e., volume, when it occurred, petroleum product).  YES  NO

If YES, a ground water contamination assessment is not necessary as part of the LSI.

If NO, a ground water contamination assessment is necessary. Complete Section 5.

Former Vacant Parking Lot – MPCA  
 Terracon Project No. 41017023  
 Investigation Report Form  
 April 2000

## Section 5: Aquifer Characteristics/Ground Water Contamination Assessment

Complete Section 5 if groundwater has been contaminated or may become contaminated. Aquifer determination is made during the LSI. It is based upon the stratigraphy and a hydraulic conductivity measurement calculated from grain size distribution analysis. The site stratigraphy gives the context within which the hydraulic conductivity measurement can be interpreted. Please refer to Fact Sheet 3.19, *Soil and Ground Water Investigations Performed During Remedial Investigations* for methods and requirements.

### 5.1 Provide an average hydraulic conductivity value (K) measured:

K = 138 ft/day

Indicate the method of measurement (i.e., Hazen, Masch and Denny, Kozeny-Carmen, etc.): Grain-size distribution approximations by **Kozeny-Carmen Grain Size Analysis (Bear, 1972)** method(s).

Indicate the locations and depths of soil samples submitted for grain size analyses. Provide the results of grain size analyses and other information used for the determination of K-values in Appendix F. **Hydraulic conductivity test results are located in Appendix A.**

### 5.2 Calculate a range for aquifer transmissivity (T) using the equation $T = Kb$ , where b is the thickness of the aquifer:

**The aquifer thickness of 44 feet was obtained by comparing the observed ground water level of 36 feet bgs with well logs obtained from within the half-mile radius. Bedrock was listed in several of the logs as occurring at approximately 80 feet bgs (80-36=44). (Appendix E)**

**The aquifer thickness of 19 feet was obtained from the observed thickness of the sand observed on-site while during soil exploration. Ground water was observed at approximately 36 feet bgs in soil probe P-9. Soil probe P-9 was advanced to a depth of 55 feet bgs (55-36=19).**

$$T_{High} = 6,072 \text{ ft}^2/\text{day} = (138 \text{ ft/day} \times 44 \text{ ft})$$

$$T_{Low} = 2,622 \text{ ft}^2/\text{day} = (138 \text{ ft/day} \times 19 \text{ ft})$$

**b = thickness of water bearing sand units in P-2 (2 ft) and P-5 (5 ft).**

**K = mean of hydraulic conductivity values from grain size analyses.**

Former Vacant Parking Lot – MPCA  
Terracon Project No. 41017023  
Investigation Report Form  
April 2000

Determine the aquifer thickness (b) from geologic logs of soil borings, water well logs, and available published information. Attach water well logs in Appendix E. If the transmissivity of a contaminated hydrogeologic unit is greater than 50 ft<sup>2</sup>/day, it is considered an aquifer (for the purpose of the LUST program), and monitoring wells will be necessary.

- 5.3 Discuss in detail the site geology and stratigraphy, including a discussion of local and regional hydrogeology, using soil boring data and cross sections, geologic logs of near-by water wells, and available published information.

**The site is located in an area characterized by glacial outwash consisting primarily of sand, loamy sand, and gravel (Geologic Atlas of Hennepin County, Minnesota; County Atlas Series, Atlas C-4, 1989). The atlas classifies the area as having bedrock at 51 to 100 feet bgs. Ground water was observed during soil exploration activities on three occasions as occurring at depths of 32 feet bgs and 36 feet bgs. The regional ground water flow direction in the water table aquifer is reportedly to the east, towards the Mississippi River.**

**The Hennepin County Atlas indicates that bedrock below the surficial glacial outwash consists of the Platteville and Glenwood Formations. Well logs were obtained from the County Well Index. The well logs indicated that wells located within ½ mile of the site are generally cased through the Platteville and Glenwood Formations. The Platteville Formation is generally encountered at depths of approximately 80 feet bgs. Wells were identified that were completed in the St. Peter Sandstone, Prairie du Chien Group and Jordan Sandstone (Prairie du Chien-Jordan aquifer). The regional horizontal ground water flow direction within the bedrock aquifers is anticipated to be to the east, towards the Mississippi River.**

**Data collected from the soil probes advanced by Terracon in June and November of 2001 suggest that the subsurface consists primarily of approximately ten (10) feet of various sandy fill materials. Native material under the fill consists primarily of poorly to well sorted sand containing varying amounts of gravel. Confining units were not encountered. Based upon the above information it appears that contamination is likely limited to the Quaternary age water table aquifer. Geologic cross-sections are presented in Figures 6A and 6B. The locations of the cross-sections are shown on Figure 5.**

- 5.4 Attach Table 5- Water Level Measurements and Depths of Water Samples Collected from Borings. Indicate the method used to measure the water levels in borings, and the depth water samples were collected from borings. Allow water levels in borings to equilibrate to static conditions, and the adjust the effective screened intervals in borings to intercept the static water table prior to water sample collection. Discuss groundwater flow direction.

Former Vacant Parking Lot – MPCA  
Terracon Project No. 41017023  
Investigation Report Form  
April 2000

See Table 5 and Figure 4. Based upon the local topography and contaminant distribution the local horizontal ground water flow direction appears to be to the southeast.

- 5.5 Attach Table 6 - Analytical Results of Water Samples Collected from Borings. Summarize the analytical results of groundwater samples collected as part of an LSI. Discuss the extent and magnitude of groundwater contamination. Also provide a discussion on QA/QC, including information on the samples collected and laboratory analyses performed.

Ground water samples collected from probes P-1 through P-10 were analyzed for volatile organic compounds (VOCs), GRO, and DRO. Ground water samples from probes P-1 to P-4 and P-7 to P-10 were also analyzed for polyaromatic hydrocarbons (PAHs) (Tables 6 and 7). GME Consultants submitted one water sample from boring B-3 for analysis of GRO, BTEX, MTBE, and DRO in April of 1995. Contamination from petroleum was encountered in each of the water samples collected. However, some locations had significantly greater concentrations of contaminants than other locations. The primary contaminant constituent appears to be gasoline. GRO concentrations greater than 10,000 ug/L were detected in ground water samples from borings/probes B-3 (1995), P-1, P-3, P-7, P-8, P-9, and P-10. Benzene was encountered above the HRL of 10 ug/L in ground water samples collected from probe locations P-3, P-7, P-9, and B-3 (1995). Benzene was encountered at concentrations below the HRL of 10 ug/L in the water sample collected from soil probe P-5. Based on the contaminant distribution and magnitude of GRO concentrations it appears that the source of the on-site gasoline contamination likely originated near the western half of the property and has migrated to the southeast. Soil probe P-6 appears to represent the up-gradient boundary of the plume. Soil probes P-2 and P-4 appear to represent southwestern and northeastern side-gradient edges, respectively. The plume appears to extend to the southeast for an undetermined distance. Benzene, GRO and DRO ground water quality data and the inferred extent of contamination are summarized on Figure 4.

Compounds were not detected above reporting limits in either of the trip blanks or method blanks analyzed for June and November sampling events.

- 5.6 Attach Table 7 - Other Contaminants Detected in Water Samples Collected from Borings (Petroleum or Non-petroleum Derived). Discuss the possible sources of these contaminants and provide a discussion of QA/QC information.

Several compounds associated with creosote (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and acenaphthene) were detected in the ground water samples collected at the site. Naphthalene was detected in ground water samples from probes/borings P-1 to P-4 and P-7 to P-10. The creosote related compounds are generally occurring at higher concentrations in the southern half of the site. A likely

source for the above mentioned compounds is the Reilly Tar Superfund Site, which is located to the west.

Concentrations of compounds associated with solvents were detected in the ground water samples collected from probes P-5 and P-6. Vinyl chloride, trichloroethene, tetrachloroethene, cis-1,2-dichloroethene, and trans-1,2-dichloroethene were each detected in ground water samples collected from probes P-5 and P-6. Ground water collected from probe P-5 generally has higher concentrations of solvent related compounds than does probe P-6. The source for solvent related compounds is presently unknown. It is possible that the fore-mentioned compounds are present in ground water at other soil probe locations. Laboratory reporting limits in some of the ground water samples were significantly higher than the solvent concentrations detected in the ground water sample from probe P-6. This phenomenon may or may not have resulted in the solvent related compounds not being detected in the other ground water samples.

5.7 Laboratory certification number: EnChem, Inc. 055-999-334

### **Additional Ground Water Investigation – N/A**

Complete **Section 6** only if: 1) *an aquifer has been impacted at or above Minnesota Department of Health HRLs*, 2) *an aquifer has been impacted below the HRLs, but the levels are likely to reach the HRLs*, or 3) *there is an insufficient distance separating the petroleum contaminated soil (or an impacted non-aquifer) from the underlying aquifer*. Complete **Section 7** only if remediation is anticipated. Regardless of whether you are submitting a *LSI* or a *full RI*, all sections following Section 7 must be completed.

### **Section 6. Extent and Magnitude of Ground Water Contamination - NA**

- 6.1 Discuss drilling and installation of wells, including the rationale for their locations. Attach boring logs in Appendix D.
- 6.2 Attach Table 8 - Monitoring Well Completion Information.
- 6.3 Attach Table 9 - Summary of Water Levels Measured in Wells.
- 6.4 Attach Table 10 - Analytical Results of Water Samples Collected from Wells.
- 6.5 Attach Table 11 - Other Contaminants Detected in Water Samples Collected from Wells (Petroleum or Non-Petroleum Derived).

6.6 Describe the extent and magnitude of the ground water contamination. Discuss the presence of non-petroleum compounds, if detected, and identify possible sources of these compounds. Also provide a discussion on QA/QC, including information on the samples collected and laboratory analyses performed.

6.7 Is there a clean or nearly clean (below HRLs) down-gradient monitoring well located along the longitudinal axis of the contaminant plume? (approximately 20 degrees plus or minus the axis)  YES  NO

6.8 Is there a worst case well completed through the source area(s) of the release?  YES  NO

If you have answered *NO* to any of the above two questions, please explain why a well was not completed in the required location.

6.9 Provide an estimate of the longitudinal length of the dissolved contaminant plume: Feet

6.10 Calculate groundwater flow velocity (based on Darcy's Law) using the average K-value, average horizontal hydraulic gradient, and effective porosity. Provide documentation in Appendix F.

Hydraulic Conductivity (K) =

Porosity (n) = \_\_ method/reference

Average horizontal gradient (dh/dl) =

Calculated GW velocity (v) = \_\_ cm/s \_\_ ft/day = \_\_ ft/day x \_\_\_\_ / \_\_\_\_ t/ft

6.11 Using the calculated groundwater flow velocity (above), is there a receptor within a five-year travel time?  YES  NO

If *YES*, provide the unique well number and identify the location of the receptor(s).

6.12 Were any deep monitoring wells completed at the site?  YES  NO

If *YES*, list them and indicate their depths:

Contact the MPCA project hydrologist before installing a deep monitoring well. A deep monitoring well may be necessary if: 1) Contamination exists more than 10 feet below the water table or 2) the impacted aquifer is a drinking water aquifer or is hydraulically connected to the aquifer(s) presently utilized by a water supply well located within 500 feet of the release source.

Former Vacant Parking Lot – MPCA  
Terracon Project No. 41017023  
Investigation Report Form  
April 2000

If contamination is present at depth in the aquifer or in deeper aquifers, additional deep wells may be required. Provide the following information if deep wells are installed:

Vertical Gradient (dv/dl)  
Inferred GW Flow Direction

Provide the following information for the deep aquifer unit if it appears to be hydrogeologically distinct from the upper unit.

Porosity (n):  
Hydraulic Conductivity (K)

### Section 7: Evaluation of Natural Attenuation - N/A

Refer to the fact sheet #3.21 *Assessment of Natural Attenuation at Petroleum Release Sites*.

**Note:** Evaluation of natural attenuation is not required unless requested by MPCA staff.

**Natural attenuation parameters were not collected at this site.**

7.1 Attach Table 12 - Natural Attenuation Parameters. Discuss the results. Specifically, compare the concentrations of the inorganic parameters inside and outside the plume.

7.2 In your judgment, is natural biodegradation occurring at this site? Please  YES  NO Explain.

If active remediation is anticipated, discuss reasons why natural attenuation (including biodegradation) can not adequately remediate the contaminants to acceptable risk levels.  
N/A

### Section 8: Well Receptor Information/Assessment - NA

Include in Appendix E, copies of the water supply well logs obtained from MGS, MDH, drillers, and where applicable, from County well management authorities.

8.1 Attach Table 13 - Properties Located Within 500 Feet of the Release Source. Provide a map identifying the features listed in Table 13.

**See Table 13 - 500 Foot Receptor Survey, Figure 7A – 500-Foot Receptor Survey Map, and Appendix E for the well logs from commercial and industrial wells in the area.**

Former Vacant Parking Lot – MPCA  
Terracon Project No. 41017023  
Investigation Report Form  
April 2000

- 8.2 Were all property owners within 500 feet of the release source successfully contacted to determine if water wells are present?  YES  NO  
**Responses were not received from 42 of the 45 property owners that were contacted via a questionnaire. Three of the questionnaires were returned due to the addresses being vacant. Water supply billing information obtained from the City of St. Louis Park indicated that each the properties located within a 500-foot radius of the site are connected to the municipal water supply system.**
- 8.3 Attach Table 14 - Water Supply Wells Located within 500 Feet of the Release Source and Municipal or Industrial Wells Within ½ Mile.  
**See Table 14.**
- 8.4 Discuss the results of the ground water receptor survey and any analytical results from sampling conducted at nearby water wells. Comment on the risks to water supply wells identified within 500 feet from the release source as well as the risk posed by or to any municipal or industrial wells found within ½ mile. Specifically indicate whether water supply wells identified utilize the impacted aquifer. (Note: an impacted aquifer separated from another aquifer by a clay lens may not be considered a separate aquifer).  
**Potential ground water receptors were not identified at the properties located within 500 feet of the site. Municipal water wells were not identified as being located within approximately ½ mile of the site. However, seventeen commercial and industrial wells were located within the ½ mile radius. Available well construction information for the wells in the general down gradient direction indicates that the commercial and industrial wells are cased into the underlying bedrock at depths greater than 80 feet bgs. The commercial and industrial wells do not appear to be at risk from the petroleum contamination encountered in the Quaternary age water table aquifer. It appears that the commercial and industrial wells located within ½ mile are primarily utilizing Platteville Formation, St. Peter Sandstone, and Prairie du Chien-Jordan bedrock aquifers. Risk from the petroleum contamination observed in the Quaternary age water table aquifer at the site to the commercial and industrial wells, appears to be low due to the utilization of the multiple bedrock aquifers.**
- 8.5 Is municipal water available in the area?  YES  NO
- 8.6 Are there any plans for ground water development in the impacted aquifer within 1/2 mile of the site, or one mile down-gradient of the site if the aquifer is fractured? Please give the name, title and telephone number of the person that was contacted for this information (below).  YES  NO

**Terracon contacted Steve Robertson with the MDH to determine whether the site was within a Drinking Water Supply Management Area (DWSMA). Mr. Robertson indicated that a DWSMA had not yet be delineated in the City of St. Louis Park.**

**Terracon also contacted Scott Anderson (952-924-2557) of the City of St. Louis Park. Mr. Anderson is the Superintendent of Utilities for St. Louis Park. Mr. Anderson indicated that there were no plans for ground water development within ½ mile of the site. The only activities taking place in the vicinity of the site have to do with containment activities associated with the Reilly Tar Superfund Site.**

## Section 9: Surface Water Risk Assessment

9.1 Are there any surface waters or wetlands located within ¼ mile of the site?  YES  NO

If YES, list them: **Oak Lake is located approximately 1,215 feet west of the site in an up-gradient direction.**

9.2 If surface water is present down-gradient of the site, is there a clean down-gradient monitoring well (temporary or permanent) located between the site and the surface water?  YES  NO  
 N/A

9.3 If you answered NO to question 9.2, we assume that contamination discharges to surface water. Therefore, complete the following information:

Name of receiving water:	NA
Receiving water classification ORVW?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Plume width, (W):	Feet
Plume thickness, (H):	Feet
Hydraulic conductivity, (K):	gal/day/ft <sup>2</sup>
Horizontal gradient, (dh/dl):	(unitless)
Discharge, (Q) = $H * W * K * (dh/dl) / 1440$	gal/min

Applicable chronic standard (7050 or 7052)  
Applicable max. standard (7050 or 7052)  
Applicable FAV (7050 or 7052)  
Contaminant concentration in ground water

Former Vacant Parking Lot – MPCA

Terracon Project No. 41017023

Investigation Report Form

April 2000

- 9.4 If you answered *YES* to question 9.2, identify the clean down-gradient boring or monitoring well, the distance to the surface water feature, and discuss the contamination risk potential.  
NA

## Section 10: Vapor Risk Assessment/Survey

- 10.1 Is there a history of vapor impacts in the vicinity of the site ?  YES  NO

If *YES*, describe:

- 10.2 Is there any indication that free product or contaminated ground water may be traveling off-site within the utility corridors?  YES  NO

If *YES*, utility backfill investigation is required (refer to Fact Sheet 3.19). Discuss the investigation rationale and results.

- 10.3 Discuss the potential for vapor migration/accumulation near the site. Your discussion should consider: Soil types, product type, presence and distribution of free product or high concentrations of dissolved product. Also, using cross-sections to illustrate the relationship, compare the depth of contamination with the location of underground utility lines, location and depth of storm and sanitary sewers, and location of nearby basements and sumps. **The potential for vapor migration is minimal due to depth of contamination, soil type, and utility locations. Significant levels of contamination were not encountered in soil samples collected above the water table. Soil types on site are primarily silty-sand and well sorted sands. The relatively large porosity of these coarse grained soil makes it less likely that vapor migration would necessarily show a preference for properly compacted utility conduits. The contamination appears to be mainly associated with the ground water table, which occurs at depths in excess of 30 feet bgs. Storm sewers located on-site have a depth of approximately six feet bgs (Figures 6A and 6B). The risk of vapors migrating from dissolved form in the ground water table at approximately 30 feet bgs to utility conduits located above ten feet bgs is low.**

- 10.4 Conduct a vapor survey if the vapor risk assessment indicated a risk of vapor impacts to buildings or utilities. Ask occupants of nearby buildings if they have smelled petroleum odors. See fact sheet 3.20 *Potential Receptor Surveys and Risk Evaluation Procedures at Petroleum Release Sites*. Describe and interpret the results of the vapor survey. Identify the vapor monitoring location on an attached site map. **Not conducted**

- 10.5 Attach Table 15 - Results of Vapor Monitoring. **Not conducted**

## Section 11: Discussion

11.1 Discuss the risks associated with the remaining soil contamination:

Significant areas of petroleum related soil contamination were not encountered during assessment activities at the site. Analysis of soil samples did not detect the petroleum contaminants analyzed for with the exception of soil samples collected from boring B-4. However, the depth from which the soil sample was collected suggests that the contamination detected is associated with the water table. The soil for much of the site is overlain by asphalt or building structure. As such, the risk of exposure by direct contact or inhalation associated with soil contamination occurring in unexplored areas is minimal. The lack of detectable concentrations of soil contamination in soil samples suggests that the risk of vapor impacts associated with the site is minimal.

11.2 Discuss the risks associated with the impacted ground water:

The risks associated with the petroleum impacted ground water plume underlying the site appears minimal because pathways linking contaminant sources to potential receptors were not identified. The impacted Quaternary age water table aquifer underlying the site is not used as a source of drinking water. In addition, the depth of the ground water contamination appears to be below any identified utilities or basements.

11.3 Discuss other concerns not mentioned above: The source of the PAHs detected in the ground water samples appears to be the Reilly Tar Superfund Site. The source of the tetrachloroethene and associated daughter products detected in ground water samples collected along the north property boundary is not known.

## Section 12: Conclusions and Recommendations

- 12.1 Recommendation for site:
- site closure
  - additional vapor monitoring
  - additional ground water monitoring
  - active remediation

Base the recommendation above on fact sheet #3.1 *Leaking Underground Storage Tank Program*. Describe below how you applied the policy to support your recommendation. If closure is recommended, please summarize significant site investigative events and describe how site specific risk issues have been adequately addressed or minimized to acceptable low risk levels.

Assessment activities performed at the site have delineated the extent of petroleum related soil contamination in the unsaturated zone. The available data suggests that there is not a substantial source mass of petroleum impacted soil in the unsaturated,

Former Vacant Parking Lot -- MPCA

Terracon Project No. 41017023

Investigation Report Form

April 2000

unless it is located under the existing building. The horizontal extent of petroleum related ground water contamination has not been delineated to the west (side-gradient) and southeast (downgradient). There appears to be petroleum contamination migrating on to the property from LEAK8367 located to the west of the site. LEAK8367 has been closed. The horizontal extent of petroleum contamination was not delineated to the southeast because of access concerns with State Highway 7, a frontage road, an electrical substation and a railroad bridge. The west bound lanes of Highway 7 are located approximately 50 feet further down-gradient than probe P-7. However, it is unlikely that a sample 50 feet down-gradient would show a boundary to the plume, due to the concentrations of contaminants detected in the ground water sample collected from probe P-7. The east bound Highway 7 right-of-way of Highway 7 is located approximately 150 feet down-gradient of probe P-7 and is utilized by utilities. Further downgradient is frontage road that may be accessible.

Although the downgradient extent of the petroleum plume has not been defined, Terracon recommends project closure as existing ground water and vapor receptors were not identified and the petroleum plume is within the creosote plume associated with the Reilly Tar Superfund site. In addition, benzene, GRO, and DRO concentrations in the water sample collected by GME Consultants in boring B-3 (1995) are significantly higher than concentrations in water samples collected in adjacent borings and probes performed by Terracon in 2001. This evidence suggests that contaminant concentrations on-site are decreasing. Also, significant areas of soil contamination were not identified.

- 12.2 If additional monitoring is recommended, indicate the proposed monitoring schedule and frequency. Conduct quarterly monitoring until the MPCA responds to this report.
- 12.3 If active remediation is proposed, then recommend a conceptual approach by listing the remedial technologies or combination of technologies that are likely feasible. MPCA staff will review this RI report at a higher than normal priority to determine if active remediation is required. We will respond with either a request for proposal for additional monitoring or a Corrective Action Design report. NA

#### General Comments

The analysis and opinions expressed in this report are based upon data obtained from the soil borings and laboratory chemical analysis at the indicated locations or from other information discussed in this report. This report does not reflect variations in subsurface stratigraphy, hydrogeology, and contaminant distribution which may occur across the site. Actual subsurface conditions may vary and may not become evident without further assessment.

Former Vacant Parking Lot – MPCA

Terracon Project No. 41017023

Investigation Report Form

April 2000

**This report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted environmental engineering practices. No warranties are intended or made. In the event any changes in the nature or location of suspected sources of contamination as outlined in this report are observed, the conclusions and recommendations contained in this report shall not be valid unless these changes are reviewed and the opinions of this report are modified or verified in writing by Terracon.**

Former Vacant Parking Lot – MPCA

Terracon Project No. 41017023

Investigation Report Form

April 2000

## Section 13: Figures

Attach the following figures in order of discussion in the text:

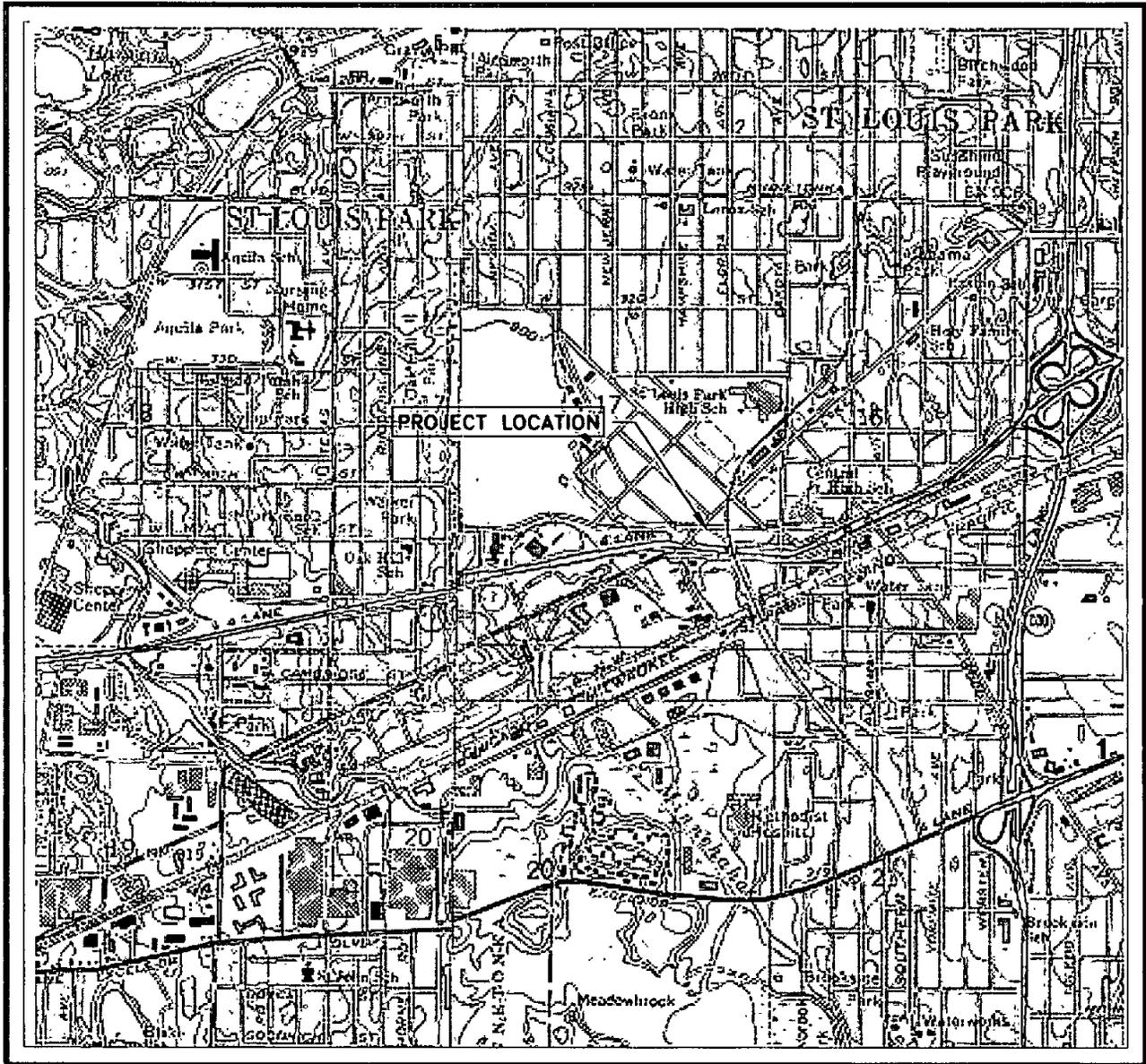
1. Site location map using a U.S. Geological Survey 7.5 minute quadrangle map.
2. One or more site map showing:
  3. • Structures
  4. • Locations and depths of on-site buried utilities
  5. • All past and present petroleum storage tanks, piping, and dispensers
  - Extent of soil excavation
  - Boring and well locations (including any drinking water wells on site)
  - Horizontal extent of soil contamination
  - Horizontal extent of ground water contamination
  - Location of end points for all geologic cross sections.

Distinguish sequential elements of investigations by dates, symbols, etc. in the key.

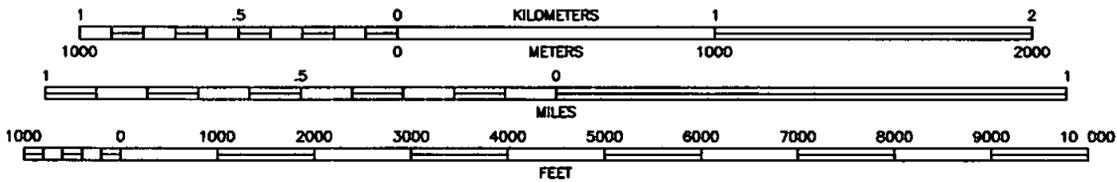
- 6A – Provide at least two (2) geologic cross sections, including utilities.  
6B

Ground water gradient contour maps (for sites with monitoring wells) for each gauging event.

- 7A -7B Well receptor survey map showing 1/2 mile radius, 500 foot radius, water supply wells, other potential sources of contamination, using a U.S. Geological Survey 7.5 minute quadrangle.



SCALE 1:24 000



CONTOUR INTERVAL 10 FEET  
 NATIONAL GEODETIC VERTICAL DATUM OF 1929  
 DOTTED LINES REPRESENT 5-FOOT CONTOURS

MINNEAPOLIS SOUTH QUADRANGLE  
 HOPKINS QUADRANGLE  
 MINNESOTA-HENNEPIN COUNTY  
 7.5 MINUTE SERIES (TOPOGRAPHIC)

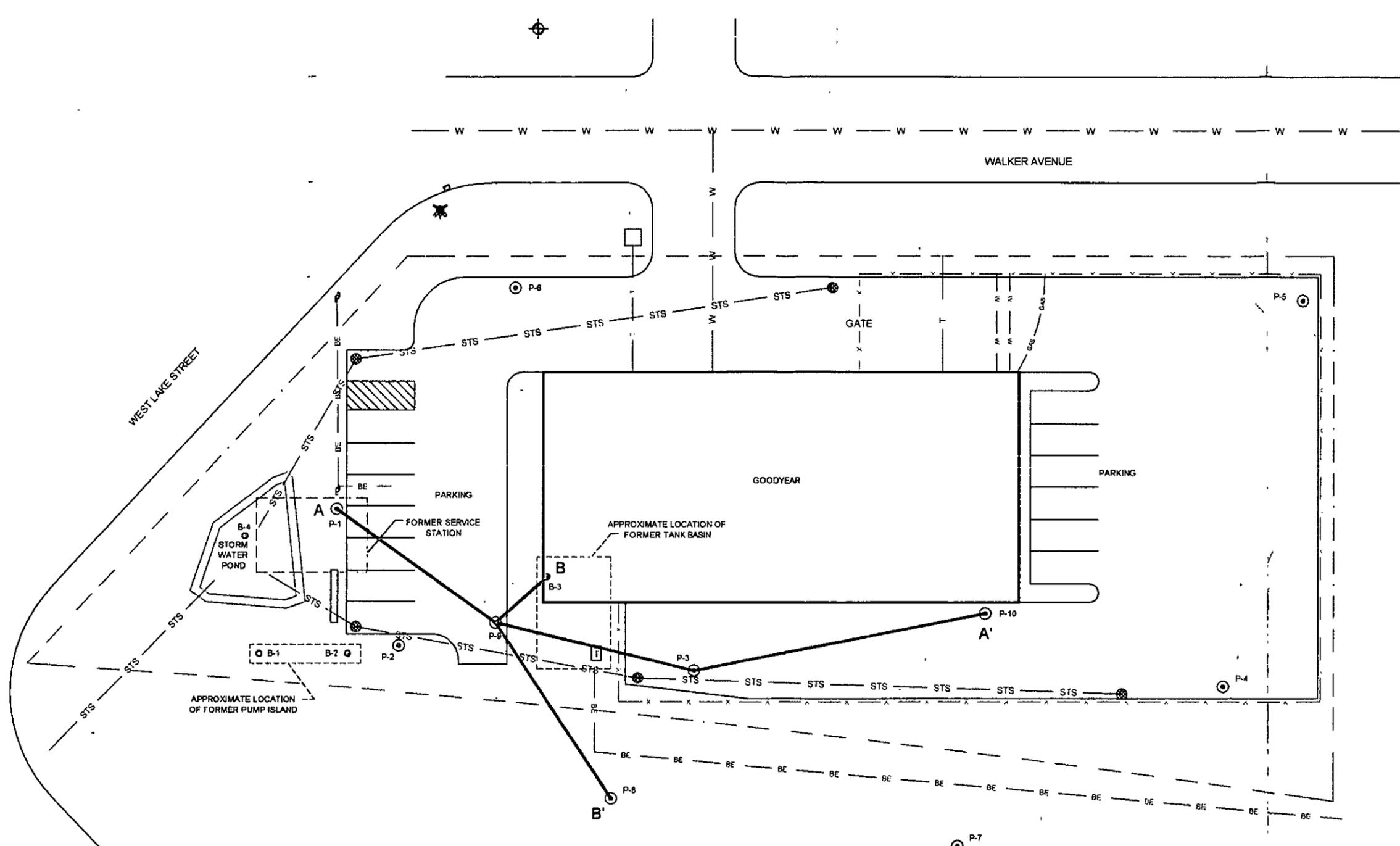
**Terracon**  
 3535 HOFFMAN ROAD EAST  
 WHITE BEAR LAKE, MN 55110  
 (651) 770-1500 FAX (651) 770-1657

VACANT LOT-MPCA  
 ST. LOUIS PARK, MINNESOTA  
 TERRACON PROJECT NO. 41017023

DRAWN BY:  
 RJK  
 CHECKED BY:  
 PJW  
 FILE:  
 023SL.DWG  
 SCALE:  
 AS SHOWN  
 DATE:  
 10/04/01

SITE LOCATION MAP

FIGURE  
 1



- LEGEND:**
- TRANSFORMER
  - SOIL PROBE
  - SOIL BORING (BY OTHERS)
  - MONITORING WELL
  - FIRE HYDRANT
  - BURIED ELECTRIC
  - FENCE LINE
  - STORM SEWER LINE
  - TELEPHONE LINE
  - WATER LINE
  - GAS LINE
  - CROSS SECTION LINE A-A'
  - CROSS SECTION LINE B-B'

**CROSS-SECTION INDEX MAP**  
**FORMER VACANT PARKING LOT - MPCA**  
 7001 WEST LAKE STREET  
 ST. LOUIS PARK, MINNESOTA

Project Mgr:	P JW	<b>Terracon</b>	Project No.	41017023
Designed By:	P JW		Scale:	1" = 30'
Checked By:	P JW	3535 Hoffman Road East White Bear Lake, Minnesota	Date:	AUG '01
Approved By:	P JW		Drawn By:	JLK
File Name:	41017023-SITE DRAWINGS L(CROSS-S)		Figure No.	5

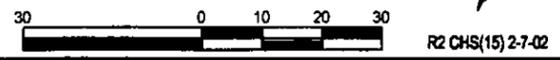
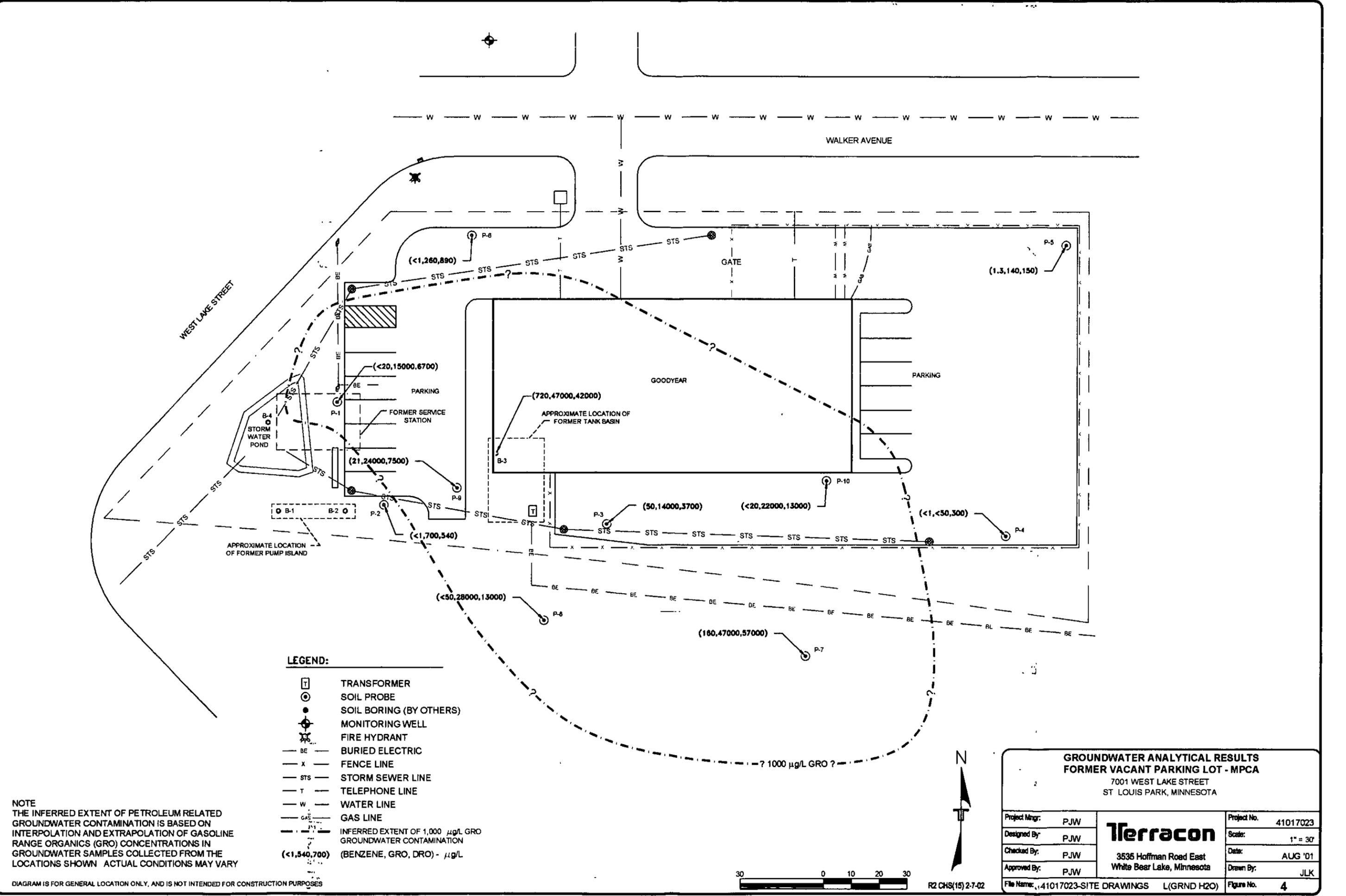


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES



NOTE  
 THE INFERRED EXTENT OF PETROLEUM RELATED  
 GROUNDWATER CONTAMINATION IS BASED ON  
 INTERPOLATION AND EXTRAPOLATION OF GASOLINE  
 RANGE ORGANICS (GRO) CONCENTRATIONS IN  
 GROUNDWATER SAMPLES COLLECTED FROM THE  
 LOCATIONS SHOWN. ACTUAL CONDITIONS MAY VARY.

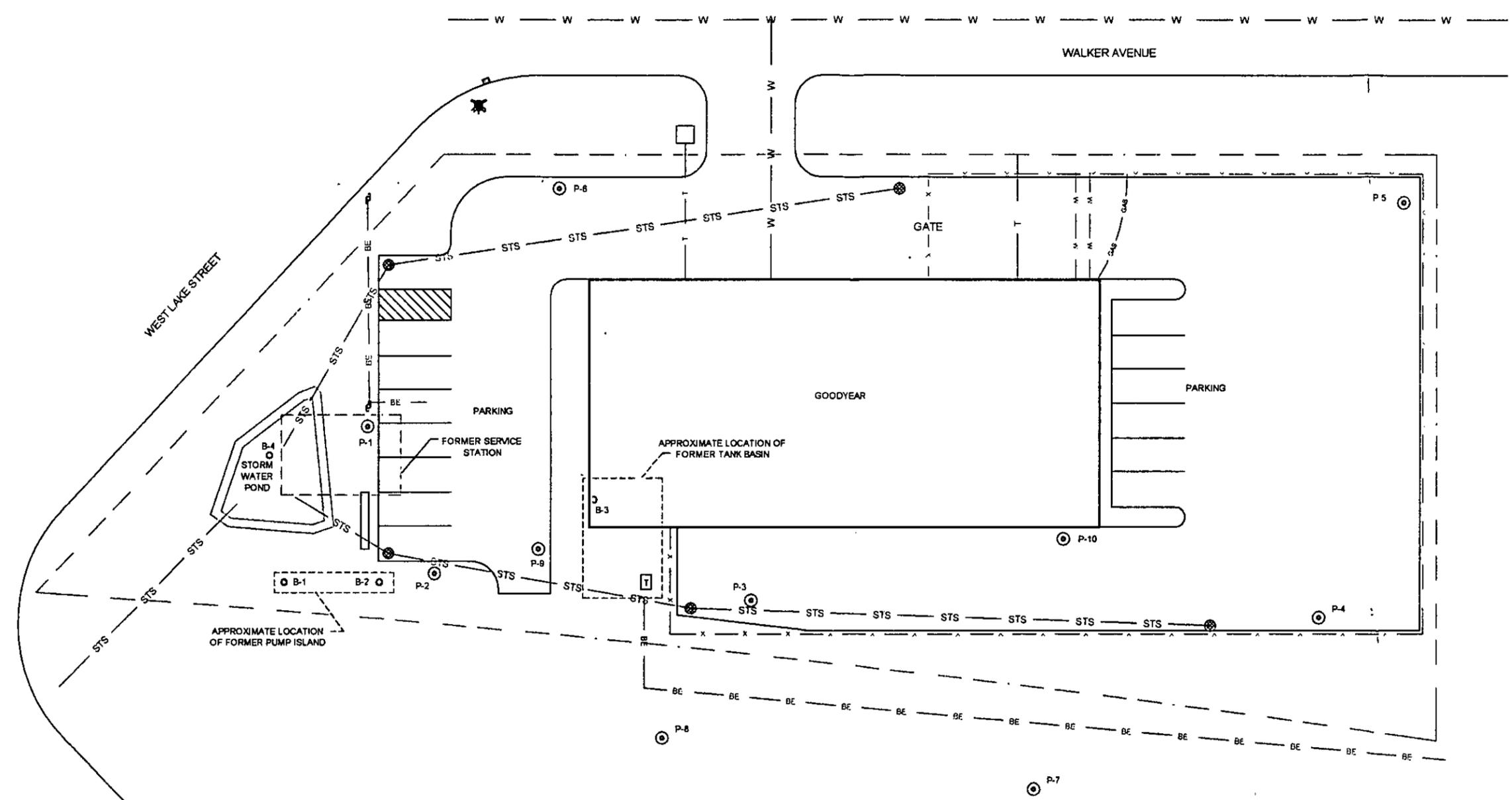
- LEGEND:**
- TRANSFORMER
  - SOIL PROBE
  - SOIL BORING (BY OTHERS)
  - MONITORING WELL
  - FIRE HYDRANT
  - BURIED ELECTRIC
  - FENCE LINE
  - STORM SEWER LINE
  - TELEPHONE LINE
  - WATER LINE
  - GAS LINE
  - INFERRED EXTENT OF 1,000 µg/L GRO  
 (BENZENE, GRO, DRO) - µg/L

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES



GROUNDWATER ANALYTICAL RESULTS FORMER VACANT PARKING LOT - MPCA 7001 WEST LAKE STREET ST. LOUIS PARK, MINNESOTA				
Project Mgr:	PJW	<b>Terracon</b> 3535 Hoffman Road East White Bear Lake, Minnesota	Project No.	41017023
Designed By:	PJW		Scale:	1" = 30'
Checked By:	PJW		Date:	AUG '01
Approved By:	PJW		Drawn By:	JLK
File Name: 41017023-SITE DRAWINGS (GRND H2O)		Figure No.		4

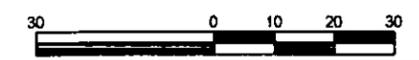
R2 CHS(15) 2-7-02



- LEGEND:**
- TRANSFORMER
  - SOIL PROBE
  - SOIL BORING (BY OTHERS)
  - MONITORING WELL
  - FIRE HYDRANT
  - BURIED ELECTRIC
  - FENCE LINE
  - STORM SEWER LINE
  - TELEPHONE LINE
  - WATER LINE
  - GAS LINE

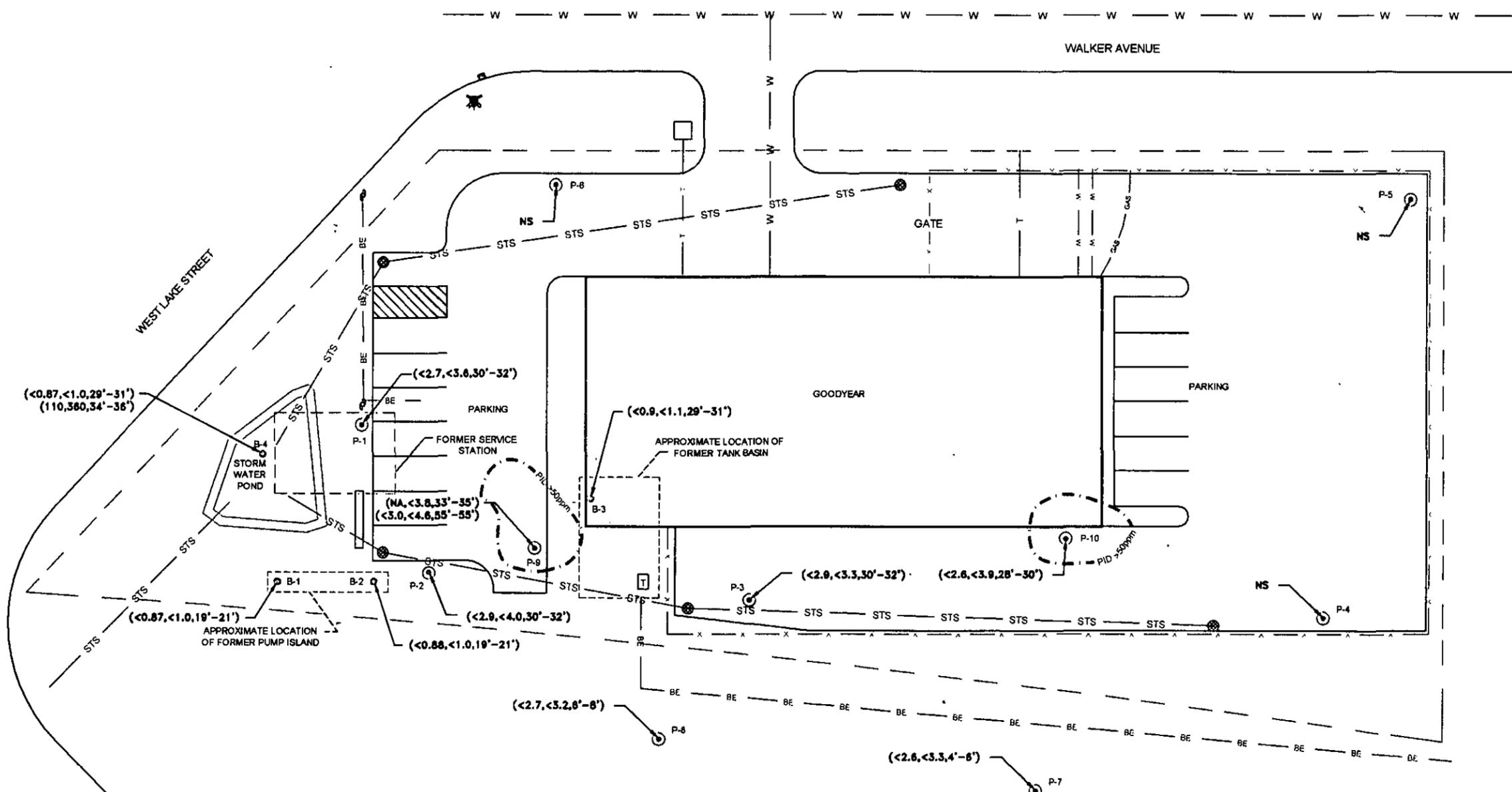


<b>SITE MAP</b>				
<b>FORMER VACANT PARKING LOT - MPCA</b>				
7001 WEST LAKE STREET ST LOUIS PARK, MINNESOTA				
Project Mgr:	PJW	<b>Terracon</b> 3535 Hoffman Road East White Bear Lake, Minnesota	Project No	41017023
Designed By:	PJW		Scale:	1" = 30'
Checked By:	PJW		Date:	AUG '01
Approved By:	PJW		Drawn By:	JLK
File Name:	41017023-SITE DRAWINGS L(SITE MAP)		Figure No	2



R0 CHS(15) 1-16-02

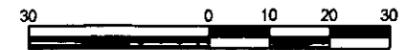
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES



NOTE  
 THE INFERRED EXTENT OF PETROLEUM CONTAMINATION IN SOIL IS BASED ON INTERPOLATION AND EXTRAPOLATION OF PHOTO-IONIZATION DETECTOR (PID) DATA FROM SOIL SAMPLES COLLECTED AT DEPTHS OF LESS THAN 20 FEET FROM THE LOCATIONS SHOWN (TABLE 2) ACTUAL CONDITIONS MAY VARY

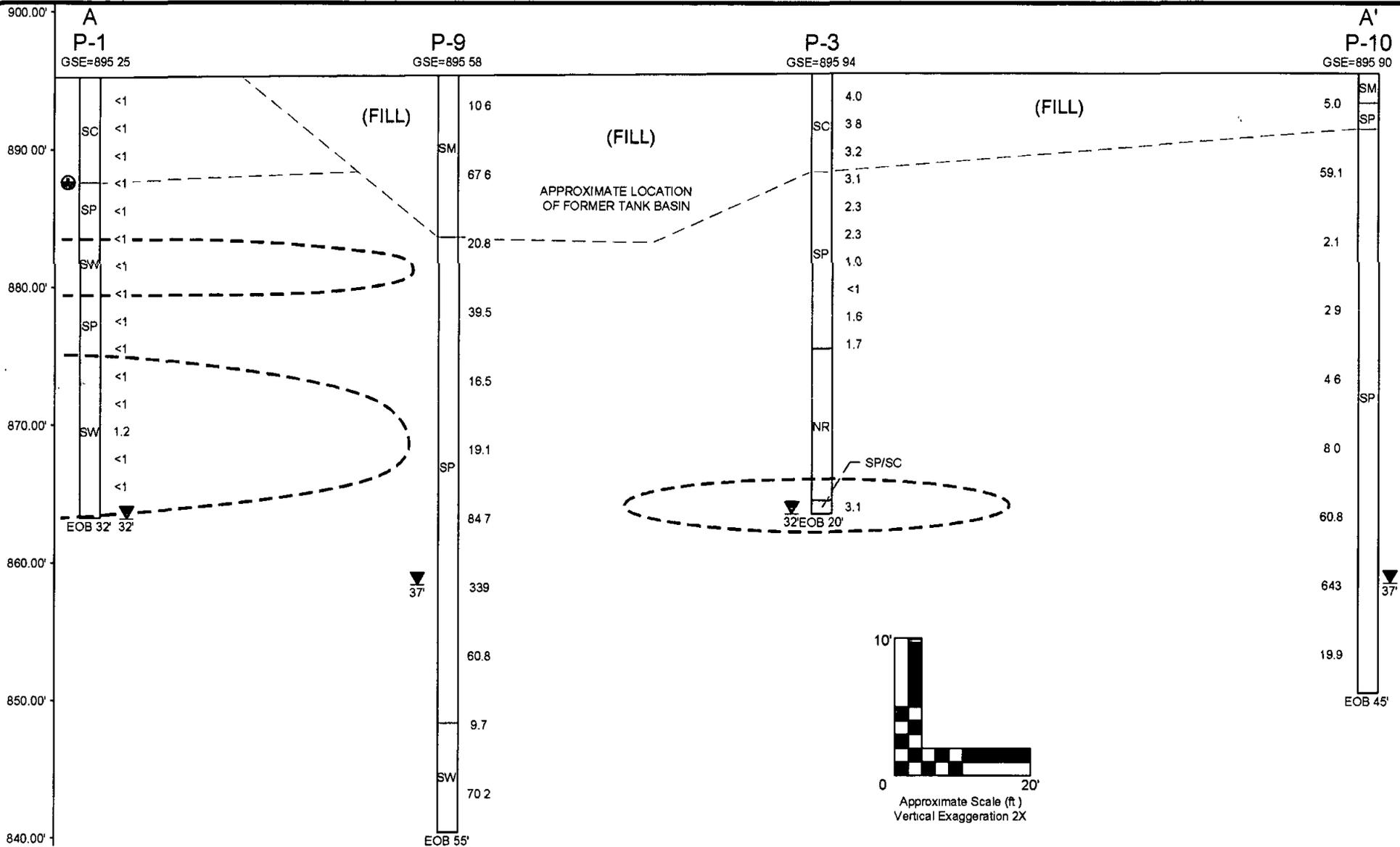
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

- LEGEND:**
- TRANSFORMER
  - SOIL PROBE
  - SOIL BORING (BY OTHERS)
  - MONITORING WELL
  - FIRE HYDRANT
  - BURIED ELECTRIC
  - FENCE LINE
  - STORM SEWER LINE
  - TELEPHONE LINE
  - WATER LINE
  - GAS LINE
  - INFERRED AREA OF SOIL CONTAMINATION (PID >50ppm)
  - (2.5, 5.5, 10'-12') (GRO, DRO, Depth in Feet)
  - NS NOT SAMPLED



SOIL ANALYTICAL RESULTS FORMER VACANT PARKING LOT - MPCA				
7001 WEST LAKE STREET ST. LOUIS PARK, MINNESOTA				
Project Mgr:	PJW	<b>Terracon</b> 3535 Hoffman Road East White Bear Lake, Minnesota	Project No.	41017023
Designed By:	PJW		Scale:	1" = 30'
Checked By:	PJW		Date:	AUG '01
Approved By:	PJW		Drawn By:	JLK
File Name: 41017023-SITE DRAWINGS L(SOIL RSLTS)		Figure No.		3

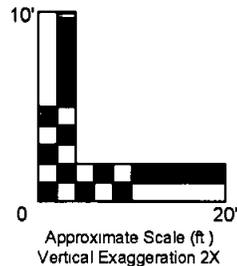
R2 CHS(15) 2-7-02



- LEGEND**
- ND = NOT DETECTED
  - < = LESS THAN
  - ▼ = GROUND WATER ELEVATION
  - ⊕ = STORM SEWER
  - CL = LOW PLASTICITY CLAY
  - SC = CLAYEY SAND
  - SP = POORLY GRADED SAND
  - SM = SILTY SAND
  - SW = WELL GRADED SAND
  - NR = NO RECOVERY OR SAMPLE

**NOTE:**  
 THE STRATIGRAPHIC BOUNDARIES SHOWN  
 ARE BASED ON INTERPOLATION AND EXTRAPOLATION  
 BETWEEN SOIL BORING. ACTUAL CONDITIONS MAY VARY.

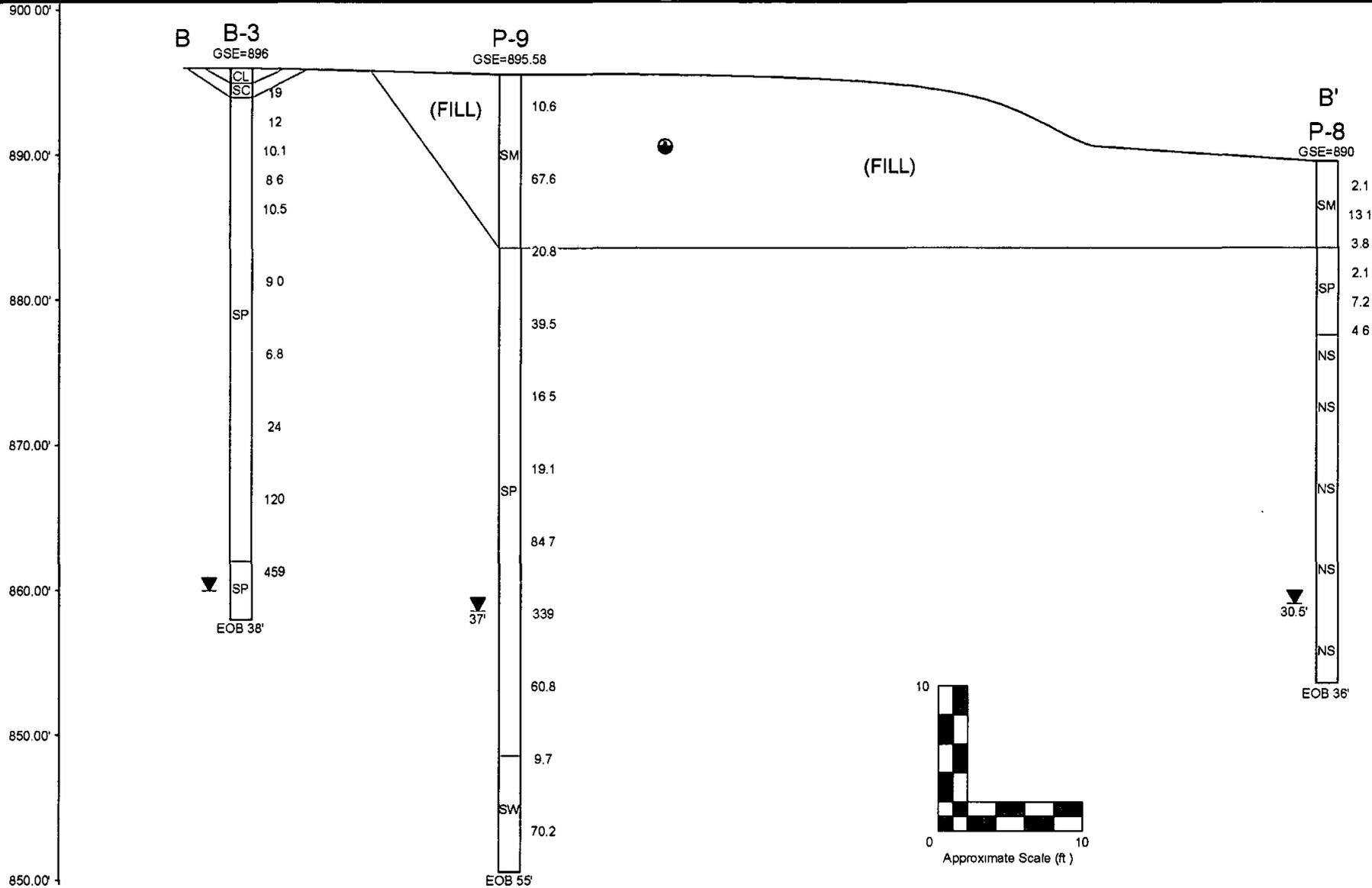
PID READINGS IN PARTS PER MILLION (ppm)



R0 CHS(15) 2-07-02

GEOLOGIC CROSS-SECTION A-A'			
FORMER VACANT PARKING LOT - MPCA			
7001 WEST LAKE STREET			
ST. LOUIS PARK, MINNESOTA			
Project Mngr:	PJW	<b>Terracon</b> 3535 Hoffman Road East White Bear Lake, Minnesota	Project No. 41017023
Designed By:	PJW		Scale: AS SHOWN
Checked By:	PJW		Date: 2-7-02
Approved By:	PJW		Drawn By: CHS(15)
File Name:	41017023-CROSS SECTION A-A L(1)		Figure No. <b>6A</b>

DIAGRAM IS FOR GENERAL LOCATION ONLY,  
 AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES



**LEGEND**

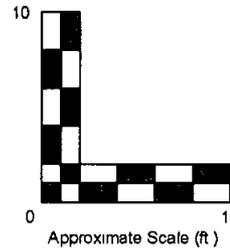
- ND = NOT DETECTED
- < = LESS THAN
- ▼ = GROUND WATER ELEVATION
- ⊙ = STORM SEWER
- CL = LOW PLASTICITY CLAY
- SC = CLAYEY SAND
- SP = POORLY GRADED SAND
- SM = SILTY SAND
- SW = WELL GRADED SAND
- NS = NO SAMPLE

**NOTE.**

THE STRATIGRAPHIC BOUNDARIES SHOWN ARE BASED ON INTERPOLATION AND EXTRAPOLATION BETWEEN SOIL BORING. ACTUAL CONDITIONS MAY VARY.

PID READINGS IN PARTS PER MILLION (ppm)

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES



**GEOLOGIC CROSS-SECTION B-B'**  
**FORMER VACANT PARKING LOT - MPCA**  
 7001 WEST LAKE STREET  
 ST. LOUIS PARK, MINNESOTA

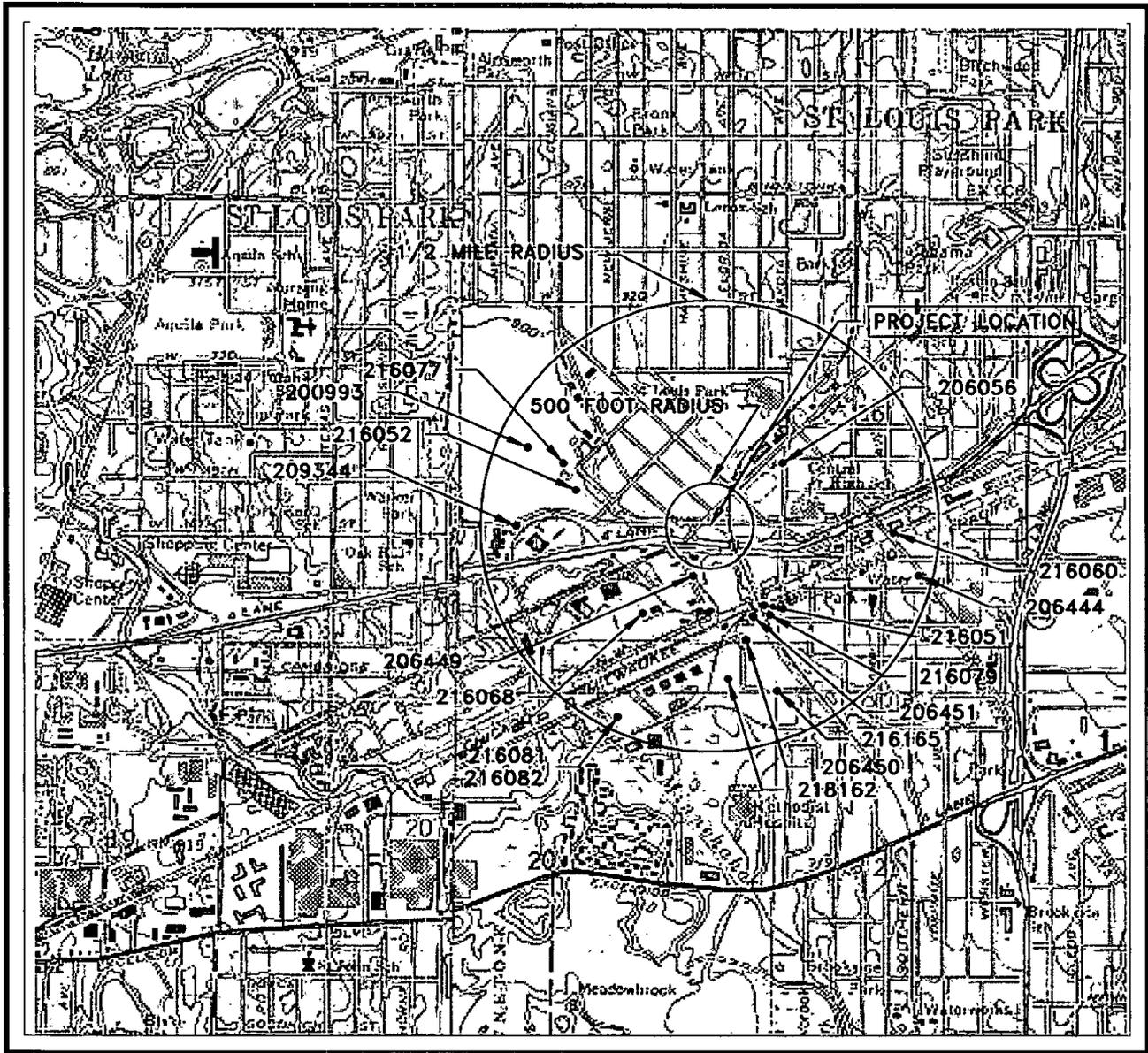
Project Mngr:	PJW
Designed By:	PJW
Checked By:	PJW
Approved By:	PJW

**Terracon**  
 3535 Hoffman Road East  
 White Bear Lake, Minnesota

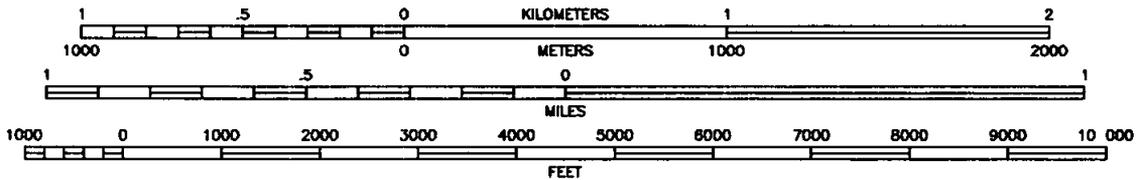
Project No.	41017023
Scale:	1" = 10'
Date:	2-8-02
Drawn By:	CHS(15)

File Name: 41017023-CROSS SECTION B-B L(1)

Figure No. **6B**



SCALE 1:24 000



CONTOUR INTERVAL 10 FEET  
 NATIONAL GEODETIC VERTICAL DATUM OF 1929  
 DOTTED LINES REPRESENT 5-FOOT CONTOURS

MINNEAPOLIS SOUTH QUADRANGLE  
 HOPKINS QUADRANGLE  
 MINNESOTA-HENNEPIN COUNTY  
 7.5 MINUTE SERIES (TOPOGRAPHIC)

**Terracon**

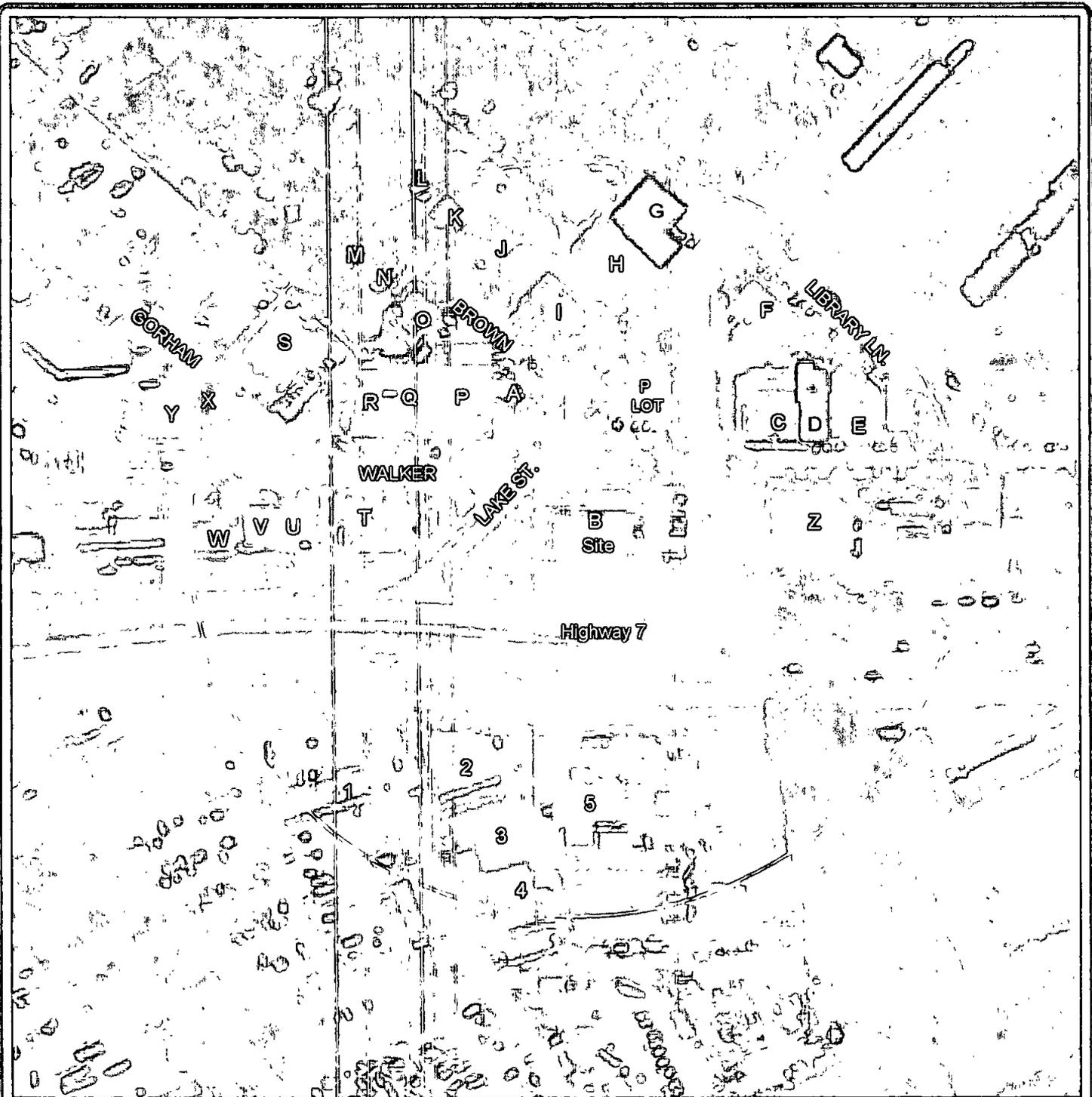
3335 HOFFMAN ROAD EAST  
 WHITE BEAR LAKE, MN 55110  
 (651) 770-1500 FAX (651) 770-1657

VACANT LOT-MPCA  
 ST. LOUIS PARK, MINNESOTA  
 TERRACON PROJECT NO. 41017023

DRAWN BY:  
 ALK  
 CHECKED BY:  
 P.W.  
 FILE:  
 0233L.DWG  
 SCALE:  
 AS SHOWN  
 DATE:  
 10/04/01

WELL SURVEY MAP

FIGURE  
 7A



APPROXIMATE 500' RADIUS



<b>AERIAL PHOTOGRAPH</b> FORMER VACANT PARKING LOT - MPCA 7001 WEST LAKE STREET ST. LOUIS PARK, MINNESOTA				
Project Mngr:	PJW	 3535 Hoffman Road East White Bear Lake, Minnesota	Project No.:	41017023
Designed By:	PJW		Scale:	1" = 190'
Approved By:	PJW		Date:	02-08-02
Checked By:	PJW		Drawn By:	CHS(15)
File Name:	41017023-AERIAL.ppt		Figure No.:	7B

Former Vacant Parking Lot – MPCA

Terracon Project No. 41017023

Investigation Report Form

April 2000

**Section 14: Tables**

**Table 1 - Not Applicable  
Tank Information**

<b>Tank #</b>	<b>UST or AST</b>	<b>Capacity</b>	<b>Contents</b>	<b>Year Installed</b>	<b>Status*</b>	<b>Condition</b>

\*Indicate: *removed (date), abandoned in place (date), or currently used*

Notes:

**TABLE 2 - RESULTS OF SOIL HEADSPACE SCREENING  
VACANT PARKING LOT - MPCA  
ST. LOUIS, MINNESOTA  
TERRACON PROJECT NO. 41017023**

Depth (ft)	Soil Boring										
	B-1	B-2	B-3	B-4	P-1	P-2	P-3	P-7	P-8	P-9	P-10
2	14	7.2	19	NS	<1	<1	4	2.1	2.1	NS	NS
4	17	8	12	NS	<1	<1	3.8	1.2	13.1	10.6	5
6	26	9.9	10	20	<1	<1	3.2	2.9	3.8	NS	NS
8	38	10	8.6	NS	<1	<1	3.1	1.2	2.1	67.6	59.1
10	29	10	10.5	1 (9-11')	<1	<1	2.3	6.4	7.2	67.6	59.1
12	NS	NS	NS	NS	<1	<1	2.3	2.9	4.6	NS	NS
14	NS	NS	NS	NS	<1	<1	1	2.1	NS	20.8	2.1
16	24	4.6	9	NR	<1	<1	<1	2.9	NS	NS	NS
18	NS	NS	NS	NS	<1	<1	1.6	NS	NS	39.5	2.9
20	24 (19-21')	7.2 (19-21')	6.8 (19-21')	1 (19-21')	<1	<1	1.7	NS	NS	39.5	2.9
22	NS	NS	NS	NS	<1	<1	NR	NS	NS	NS	NS
24	NS	NS	NS	NS	<1	<1	NR	NS	NS	16.5	4.6
26	NS	NS	24	0	1.2	<1	NR	NS	NS	NS	NS
28	NS	NS	NS	NS	<1	<1	NR	NS	NS	19.1	8
30	NS	NS	120 (29-31')	0 (29-31')	<1	<1	NR	NS	NS	19.1	8
32	NS	NS	NS	NS	<1	<1	3.1	NS	NS	NS	NS
34	NS	NS	NS	NS	NS	NS	NS	NS	NS	84.7	60.8
36	NS	NS	459	229	NS	NS	NS	NS	NS	NS	NS
38	NS	NS	NS	429	NS	NS	NS	NS	NS	339	643
40	NS	NS	NS	NS	NS	NS	NS	NS	NS	339	643
42	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
44	NS	NS	NS	NS	NS	NS	NS	NS	NS	60.8	19.9
46	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
48	NS	NS	NS	NS	NS	NS	NS	NS	NS	9.7	NS
50	NS	NS	NS	NS	NS	NS	NS	NS	NS	9.7	NS
52	NS	NS	NS	NS	NS	NS	NS	NS	NS	70.2	NS
54	NS	NS	NS	NS	NS	NS	NS	NS	NS	70.2	NS

## Notes:

Organic vapor concentrations in samples from borings B-1 - B-4 concentrations were measure in parts per million (ppm) using a photoionization detector with a 10.6 eV lamp.

Organic vapor concentrations measured in parts per million (ppm) using an Mini Rae 2000 photoionization detector w/ a 10.6 eV lamp as reference to an isobutylene standard.

< = Less than 1 ppm

ND = Not detected (<1 ppm)

NR = No Recovery

NS = Not Sampled

N:\01\01\_7023\023Tables.xls\PID

**TABLE 3 AND 4 - SOIL ANALYTICAL RESULTS  
VACANT PARKING LOT - MPCA  
ST. LOUIS, MINNESOTA  
TERRACON PROJECT NO. 41017023**

Sample Location & Depth in feet	Sample Date	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylenes mg/kg	MTBE mg/kg	GRO mg/kg	DRO mg/kg
B-1 (19-21')	04/07/95	<0.0092	<0.0083	<0.017	<0.061	<0.015	<0.87	<1.0
B-2 (19-21')	04/07/95	<0.0092	<0.0084	<0.018	<0.061	<0.016	<0.88	<1.0
B-3 (29-31')	04/07/95	<0.0094	<0.0085	<0.018	<0.062	<0.016	<b>0.90</b>	<1.1
B-4 (29-31')	04/07/95	<0.0091	<0.0083	<0.017	<0.060	<0.015	<0.87	<1.0
B-4 (34-36')	04/07/95	<0.05	<b>0.66</b>	<b>0.75</b>	<b>2.6</b>	<0.085	<b>110</b>	<b>360</b>
P-1 (30-32')	06/11/01	<0.025	<0.025	<0.025	<0.050	<0.025	<2.7	<3.6
P-2 (30-32')	06/11/01	<0.025	<0.025	<0.025	<0.050	<0.025	<2.9	<4.0
P-3 (30-32')	06/12/01	<0.025	<0.025	<0.025	<0.050	<0.025	<2.9	<3.3
P-7 (4-6')	11/28/01	<0.025	<0.025	<0.025	<0.050	<0.025	<2.6	<3.3
P-8 (6-8')	11/28/01	<0.025	<0.025	<0.025	<0.050	<0.025	<2.7	<3.2
P-9 (33-35')	11/28/01	NA	NA	NA	NA	NA	NA	<3.8
P-9 (53-55')	11/28/01	<0.025	<0.025	<0.025	<0.050	<0.025	<3.0	<4.6
P-10 (28-30')	11/28/01	<0.025	<0.025	<0.025	<0.050	<0.025	<2.6	<3.9
SRVs, Tier I	-	1.5	107	200	110	NE	NE	NE
SRVs, Tier II Indust	-	4	305	200	248	NE	NE	NE
SLVs	-	0.034	6.4	4.7	45	0.027	NE	NE

Concentrations are in milligrams per kilogram (mg/kg). mg/kg is equal to parts per million.

< = less than reporting limits (RLs)

NE = Not Established

NA = Not Analyzed

SRVs (Tier I) - MPCA Soil Reference Values same as Tier II Residential Based (11/99)

SRVs (Tier II) - MPCA Soil Reference Values - Industrial Based (11/99)

SLVs - MPCA Tier I Soil Leaching Values (11/99)

N:\01\01\_7023\023Tables.xls]Soil

**TABLE 5 - WATER LEVEL MEASUREMENTS AND DEPTH OF WATER SAMPLES COLLECTED FROM BORINGS  
FORMER VACANT PARKING LOT- MPCA  
ST LOUIS PARK, MINNESOTA  
TERRACON PROJECT NO. 41017023**

	Soil Boring or Probe									
	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	P-10
Static Water Level Depth (ft)	32	31	32	NM	NM	NM	30	30.5	37	37
Sampled Depth (ft)	32-34	32-34	32-34	35-40	44-48	35-39	32-36	32-36	35-45	35-45

Note: Methods used to measure water levels and collect samples are included in Appendix C.

ND = Not Detected

NM = Not Measured

NC = Not Collected

N:\01\_7023\023Tables.xls[water]

**TABLE 6 - GROUND WATER ANALYTICAL RESULTS  
VACANT PARKING LOT - MPCA  
ST. LOUIS, MINNESOTA  
TERRACON PROJECT NO. 41017023**

Sample Location & Depth in feet	Sample Date	Benzene ug/L	Toluene ug/L	Ethyl Benzene ug/L	Xylenes ug/L	MTBE ug/L	GRO ug/L	DRO ug/L
B-3 (36')	04/07/95	720	710	1600	10000	<140	47000	42000
P-1 (32-34')	<sup>1,2</sup> 06/11/01	<20	21	390	1720	<20	15000	6700
P-2 (32-34')	<sup>1,2</sup> 06/11/01	<1	<1	1.5	2	<1	700	540
P-3 (32-34')	<sup>1,2</sup> 06/12/01	50	2400	580	3600	<20	14000	3700
P-4 (35-40')	<sup>3</sup> 06/12/01	<1	<1	<1	<3	<1	<50	300
P-5 (44-48')	<sup>3</sup> 06/12/01	1.3	<1	<1	<3	<1	150	140
P-6 (35-39')	<sup>1,2</sup> 06/12/01	<1	<1	<1	13.2	<1	260	890
P-7 (32-36')	<sup>1,2</sup> 11/28/01	160	1600	2400	13700	<50	47000	57000
P-8 (32-36')	<sup>1,2</sup> 11/28/01	<50	580	2000	11600	<50	28000	13000
P-9 (35-45')	<sup>1,2</sup> 11/28/01	21	65	1500	7200	<20	24000	7500
P-10 (35-45')	<sup>1,2</sup> 11/28/01	<20	110	1200	5600	<20	22000	13000
<b>QA/QC Samples</b>								
Trip Blank	06/12/01	<1	<1	<1	<3	<1	<50	NA
Trip Blank	11/28/01	<1	<1	<1	<3	<1	<50	NA
Method Blank	06/12/01	<1	<1	<1	<3	<1	<50	NA
Method Blank	11/28/01	<1	<1	<1	<3	<1	<50	NA
HRL / HBV	-	10	1000	700	10000	70	200	200

Volatile concentrations in are in ug/L. ug/L is equivalent to parts per billion.

< = Denotes less than

NA = Not Analyzed

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

MTBE = Methyl Tert Butyl Ether

HRL = Health Risk Limit (MDH)

HBV = Health Base Values (MDH)

NE = Not Established

<sup>1</sup> = Early and/or late eluting peaks were present outside the GRO window (see lab report for details)

<sup>2</sup> = Early and/or late eluting peaks were present outside the DRO window (see lab report for details)

<sup>3</sup> = Hump was present late in DRO chromatogram

**TABLE 7 - OTHER CONTAMINANTS DETECTED IN GROUND WATER SAMPLES (PETROLEUM AND NON-PETROLEUM)  
VACANT PARKING LOT - MPCA  
ST. LOUIS, MINNESOTA  
TERRACON PROJECT NO. 41017023**

Sample Location & Depth in feet	Sample Date	o,s-1,2-Dichloroethene ug/L	trans-1,2-Dichloroethene ug/L	s-Butyl benzene ug/L	n-Butylbenzene ug/L	n-Propylbenzene ug/L	Tetrachloroethene ug/L	1,2,4-Trimethylbenzene ug/L	Trichloroethene ug/L	1,3,5-Trimethylbenzene ug/L	Isopropylbenzene ug/L	p-isopropyltoluene ug/L	Vinyl Chloride ug/L	Naphthalene ug/L	2-Methylnaphthalene ug/L	1-Methylnaphthalene ug/L	Acenaphthene ug/L
P-1 (32-34')	06/11/01	<20	<20	<20	72	160	<20	1400	<20	390	49	33	<20	210	130	69	<1.0
P-2 (32-34')	06/11/01	<1	<1	2.0	<1	2.2	<1	<1	<1	20	1.6	1.7	<1	11	<1	2.4	<1.0
P-3 (32-34')	06/12/01	<20	<20	<20	<20	90	<20	750	<20	190	31	<20	<20	270	160	70	<1.0
P-4 (35-40')	06/12/01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.0	0.84	0.43	<0.16
P-5 (44-48')	06/12/01	85	59	<1	<1	<1	160	<1	72	<1	<1	<1	1.7	<1	NA	NA	NA
P-6 (35-39')	06/12/01	5.6	<1	1.2	<1	5.9	2.6	100	3.0	17	5.7	5.3	1.3	12	NA	NA	NA
P-7 (32-36')	11/28/01	<50	<50	54	<50	570	<50	4300	<50	1100	180	86	<50	760	370	180	<1.1
P-8 (32-36')	11/28/01	<50	<50	<50	<50	240	<50	2200	<50	560	83	<50	<50	540	170	98	<1.0
P-9 (35-45')	11/28/01	<20	<20	<20	<20	300	<20	2500	<20	670	100	40	<20	500	220	140	1.6
P-10 (35-45')	11/28/01	<20	<20	<20	<20	280	<20	2100	<20	550	90	38	<20	510	380	190	3
<b>QA/QC Samples</b>																	
Trip Blank	06/12/01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA
Trip Blank	11/28/01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA
Method Blank	06/12/01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.05	<0.05	<0.05
Method Blank	11/28/01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.05	<0.05	<0.05
HRL / HBV	-	70	100	NE	NE	NE	7	NE	30	NE	NE	NE	0.2	300	NE	NE	

Volatile concentrations in are in ug/L ug/L is equivalent to parts per billion  
 < = Denotes less than HRL = Health Risk Limit (MDH) NE = Not Established  
 NA = Not Analyzed HBV = Health Based Value (MDH)

N:\0101\_7023\023Tables.xls]GWO 02/18/2002

Former Vacant Parking Lot – MPCA  
 Terracon Project No. 41017023  
 Investigation Report Form  
 April 2000

**Table 8- Not Applicable  
 Monitoring Well Completion Information**

Well Number	Unique Well Number	Date Installed	Surface Elevation	Top of Riser Elevation	Bottom of Well (Elevation)	Screen Interval (Elev. - Elev.)

*Notes: (location and elevation of benchmark)*

**Table 9- Not Applicable  
 Water Level Measurements in Wells**

Well Number	Date Sampled	Depth of Water from Top of Riser	Product Thickness	Depth of Water Below Grade	Relative Groundwater Elevation	Water Level Above Screen (Y/N)

*Describe in Appendix C, the methods and procedures used to measure water levels.*

*Notes:*

**Table 10 – Not Applicable  
 Analytical Results of Water Samples Collected from Monitoring Wells**

Boring Number	Date Sampled	Sampled Depth	Benzene	Toluene	Ethyl benzene	Xylenes	MTBE	GRO	DRO	Lab Type
Trip Blank										
Field Blank										
Lab Blank										
HRL			10	1000	700	10000				

*Report results in ug/L. Use less than symbols to show detection limit. Indicate mobile or fixed based in the lab type column.*

**Table 11 - Not Applicable  
 Other Contaminants Detected in Water Samples  
 Collected from Monitoring Wells (Petroleum or Non-petroleum Derived)**

Boring Number	Date Sampled	1,2 DCA	EDB				
Trip Blank							
Field Blank							
Lab Blank							
HRL (ug/L)		4	0.004				

*Report results in ug/L. Indicate other contaminants (either petroleum or non-petroleum derived) detected in water samples collected from the borings, temporary wells or push probes.*

*Notes:*

**Table 12 – NOT APPLICABLE  
 Natural Attenuation Parameters**

Monitoring Well	Sample Date	Temp. °C	pH	Dissolved Oxygen (mg/L)	Nitrate (mg/L)	(Fe II) (mg/L)	(H <sub>2</sub> S, HS <sup>-</sup> ) (mg/L)
MW-1							
MW-2							

*In Appendix C, describe the methods and procedures used.*

*Notes:*

**Table 13 - Properties Located Within 500 Feet of Release Source  
Former Vacant Parking Lot- MPCA  
St. Louis Park, MN  
Terracon Project No. 41017023**

Company	Property Address	Water Well	How Determined*	Well Use**	Public Water Supply	Confirmed By City	Basement Or Sumps	Possible Petroleum Sources	Comments Property use	
A	Mahoney Media Group	6900 E Lake St.	No	No Reply	-	Yes	Yes	No	No	Commercial
B	Goodyear Auto Service	7001 E Lake St.	No	No Reply	-	Yes	Yes	No	No	Commercial
C	Corneliuson & Assoc.	6524 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
C	Shalom Scripture Studies	6524 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
C	Audio By Design	6518 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
D	Eclipse Electric MFG. Inc.	6512 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
E	NLL USA	6504 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
E	The Knot Shop	6504 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
E	Northwest Exteriors Inc.	6500 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
F	Silhouette Imaging	3406 Library Ln.	No	No Reply	-	Yes	Yes	No	No	Commercial
F	Mike Larson Plumbing	3402 Library Ln.	No	No Reply	-	Yes	Yes	No	No	Commercial
F	Business Owner	3414 Library Ln.	No	No Reply	-	Yes	Yes	No	No	Vacant
F	Business Owner	3412 Library Ln.	No	No Reply	-	Yes	Yes	No	No	Vacant
F	Business Owner	3404 Library Ln.	No	No Reply	-	Yes	Yes	No	No	Residential
G	Midwest Music Distributors	6801 E Lake St.	No	No Reply	-	No	Yes	No	No	Commercial
G	J C. Trux Inc.	6800 E Lake St.	No	No Reply	-	No	Yes	No	No	Commercial
G	Custom Duct	6804 E Lake St.	No	No Reply	-	Yes	Yes	No	No	Commercial
H	Business Owner	6812 E Lake St	No	No Reply	-	Yes	Yes	No	No	Commercial
i	Business Owner	6824 E Lake St.	No	No Reply	-	Yes	Yes	No	No	Commercial
J	Construction/Renovation	3387 Brownlow	No	No Reply	-	Yes	Yes	No	No	Commercial
K	Homeowner	3379 Brownlow	No	No Reply	-	Yes	Yes	No	No	Residential
L	Homeowner	3375 Brownlow	No	No Reply	-	Yes	Yes	No	No	Residential
M	Homeowner	3374 Brownlow	No	No Reply	-	Yes	Yes	No	No	Residential
N	Construction/Renovation	3378 Brownlow	No	No Reply	-	Yes	Yes	No	No	Commercial
O	Presswrite Printing, Inc.	3384 Brownlow	No	No Reply	-	Yes	Yes	No	No	Commercial
O	Business Owner	3386 Brownlow	No	No Reply	-	Yes	Yes	No	No	Commercial
P	Emergency Foodshelf Net.	6714 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
Q	Moped World	6714 Walker St.	No	No Reply	-	No	Yes	No	No	Commercial
R	Business Owner	6730 Walker St.	No	No Reply	-	No	Yes	No	No	Commercial
S	Gorham Ave. Perspectives	3381 Gorham	No	No Reply	-	Yes	Yes	No	No	Commercial
T	Holiday	7000 E Lake St.	No	No Reply	-	Yes	Yes	No	Yes	Commercial
U	Business Owner	7008 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
V	Diversified Construction	7010 Walker St.	No	No Reply	-	No	Yes	No	No	Commercial
W	Reynolds Welding Supply	7015 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial

**Table 13 - Properties Located Within 500 Feet of Release Source  
Former Vacant Parking Lot- MPCA  
St. Louis Park, MN  
Terracon Project No. 41017023**

Company	Property Address	Water Well	How Determined*	Well Use**	Public Water Supply	Confirmed By City	Basement Or Sumps	Possible Petroleum Sources	Comments Property use
X Cooperative Church Supply	7008 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
Y Business Owner	7020 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
Z St. Louis Park Masonic Cntr.	6509 Walker St.	No	No Reply	-	Yes	Yes	No	No	Commercial
1 Excel Pawn and Jewlery	7003 W. Lake St.	No	No Reply	-	Yes	Yes	No	No	Commercial
2 Caryn International Academy	6651 Hampshire Ave.	No	No Reply	-	No	Yes	No	No	Commercial
3 LBF	3625 Hampshire Ave.	No	No Reply	-	Yes	Yes	No	No	Commercial
4 German Auto Works	3627 Hampshire Ave.	No	No Reply	-	No	Yes	No	No	Commercial
4 Business Owner	3629 Hampshire Ave.	No	No Reply	-	No	Yes	No	No	Commercial
4 Metric Auto Parts	3633 Hampshire Ave.	No	No Reply	-	No	Yes	No	No	Commercial
4 All Hours Towing	3635 Hampshire Ave.	No	No Reply	-	Yes	Yes	No	No	Commercial
5 NSP Substation	6601 State Hwy 7	No	No Reply	-	No	Yes	No	No	Commercial

Notes: \*As per MPCA Fact Sheet 3.20, properties for which no reply was received to a questionnaire are assumed to have no well or basement. Several of these addresses do not exist (combined lots) and were returned as "no such number".

DO = Domestic  
- = Not applicable

CO = Commercial

IND = Industrial

MU = Municipal

IR = Irrigation

N:\01\01\_7023\023Tables.xls\GW-500

**Table 14 - Water Supply Wells Located Within 500 Feet of the  
Release Source and Municipal or Industrial Wells within 1/2-Mile  
Former Vacant Parking Lot  
St. Louis Park, Minnesota  
Terracon Project No. 41017023**

Unique Well #	Ground Elevation*	Total Depth (ft)	Base of Casing (ft)	Static Elevation**	Aquifer	Use	Owner	Distance & Direction From Source
206450	900	384	241	835	MTPL	Industrial	Paul Strom Block Co	1,600 ft. SE
216081	888	280	212	864	MTPL	Commercial	Black Top Service Well	2,600 ft. SW
216082	888	105	84	863	MTPL	Commercial	Black Top Service Well	2,600 ft. SW
218162	895	190	76	865	MTPL	Industrial	ECHO Plastics	1,800 ft. S
216165	902	80	77	No Data	OPVL	No Data	No Data	2,200 ft. SE
206444	915	475	288	831	MTPL	Industrial	Minnesota Rubber Co.	2,500 ft. SE
216056	923	342	292	818	OPDC	Industrial	Sterilized Diaper Service	1,300 ft. NE
216060	914	1002	111	758.5	MTPL	Commercial	C.M.S.T.P. & P.R.R.	2,200 ft. E
200993	895	91	71	889	MTPL	Industrial	Republic Creosote	2,100 ft. NW
206449	905	182	0	885	MTPL	Industrial	Robinson Rubber Co.	600 ft. SW
206451	904	109	77	883	MTPL	Industrial	Paul Strom Block Co	1,300 ft. SE
209344	891	90	76	887	OPVL	Commercial	Lakeland Door Co.	2,050 ft. W
216051	907	90	No Data	No Data	OPVL	Domestic	6425 Oxford St.	1,300 ft. SE
216052	903	112	81	873	MTPL	Domestic	Bill Terry Excavating Co.	1,500 ft. W
216068	890	No Data	No Data	No Data	No Data	Commercial	Prestolite	1,250 ft. SW
216077	899	No Data	No Data	875	No Data	Domestic	No Data	1,850 ft. NW
216079	905	112	81	No Data	MTPL	Commercial	William V. Terry	1,450 ft. SE

\*Elevation from USGS Topographic, Reference in Feet to Mean Sea Level

\*\*Static Water Elevation Reference in Feet to Mean Sea Level (Ground - Depth to Water)

CJDN = Cambrian Jordan Sandstone

MTPL = Multiple Aquifer (CJDN & OPDC)

OPDC = Ordovician Prairie du Chien Group

OPVL = Ordovician Platteville Formation

N:\01\01\_7023\023Tables.xls\GWReceptor

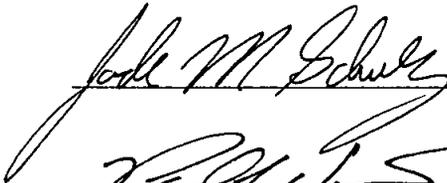
## Section 15: Appendices

Attach the following appendices.

- ✓ *Appendix A*      Hydraulic Conductivity Measurements
- ✓ *Appendix B*      Laboratory Analytical Reports for Soil and Ground Water. Include laboratory QA/QC data and laboratory certification number.
- ✓ *Appendix C*      Methodologies and Procedures, Including Field Screening of Soil, Other Field Analyses, Soil Boring, Soil Sampling, Well Installation, and Water Sampling.
- ✓ *Appendix D*      Geologic Logs of Soil Borings, Including Construction Diagrams of Temporary and Permanent Wells, and Copies of the Minnesota Department of Health Well Record.
- ✓ *Appendix E*      Copies of Water Supply Well Logs With Legible Unique Numbers.

### Section 16: Consultant (or other) Information

*By signing this document, I/we acknowledge that we are submitting this document on behalf of and as agents of the responsible person or volunteer for this leak site. I/we acknowledge that if information in this document is inaccurate or incomplete, it will delay the completion of remediation and may harm the environment and may result in reduction of reimbursement awards. In addition, I/we acknowledge on behalf of the responsible person or volunteer for this leak site that if this document is determined to contain a false material statement, representation, or certification, or if it omits material information, the responsible person or volunteer may be found to be in violation of Minn. Stat. § 115.075 (1994) or Minn. R. 7000.0300 (Duty of Candor), and that the responsible person or volunteer may be liable for civil penalties.*

Name and Title:	Signature:	Date signed:
Jade M. Schulz Environmental Scientist		3/12/02
Paul J. Wiese Senior Project Manager		3/12/02
_____	_____	____/____/____
_____	_____	____/____/____

Company and mailing address: Terracon  
3535 Hoffman Road East  
White Bear Lake, Minnesota 55110

Phone: 651-770-1500  
Fax: 651-7701657

Upon request, this document can be made available in other formats, including Braille, large print and audio tape. TTY users call 651/282-5332 or Greater Minnesota 1-800/657-3864.

Printed on recycled paper containing at least 10 percent fibers from paper recycled by consumers.

FORMER VACANT PARKING LOT - MPCA  
7001 LAKE STREET  
ST. LOUIS PARK, MINNESOTA  
TERRACON PROJECT NO. 41017023

HYDRAULIC CONDUCTIVITY (K) RESULTS

Location (depth)	Method	Effective			K (cm/sec)	K (ft/day)
		Porosity (n)	d50 (mm)	d50 (m)		
P-9 @ 33-40 ft.	K-C	0.30	0.45	0.00045	0.05330	151
P-9 @ 43-55 ft.	K-C	0.30	0.35	0.00035	0.03224	91
P-10 @ 33-45 ft.	K-C	0.30	0.48	0.00048	0.06064	172
Average		0.30	0.43	0.0004	0.049	138

Notes:

K-C = Kozney - Carmen Grain Size Analysis (Bear, 1972)

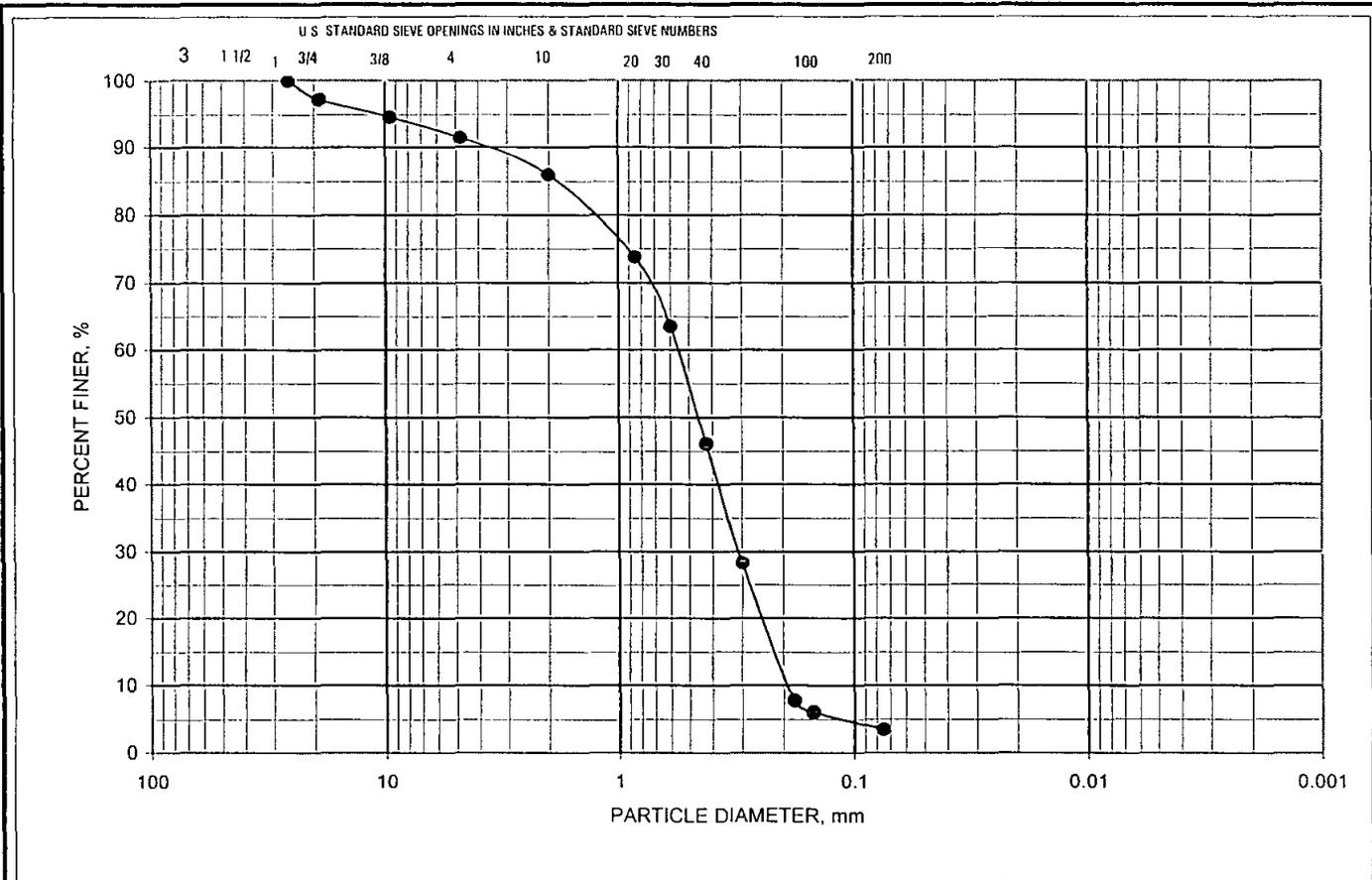
$\frac{((999.1 * 9.81) / (0.00114)) * ((n^3) / (1-n)^2) * ((d50^2) / 180)) * 100}{100}$  (Bear, 1972)

Effective porosity (n) estimate to be 0.30 (Walton, 1984).

d50 is the representative (median) particle diameter from the grain size analyses (see Appendix F)

N:\01\01\_7023\41017023-1.xls\REPORT

02/18/2002



GRAVEL		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

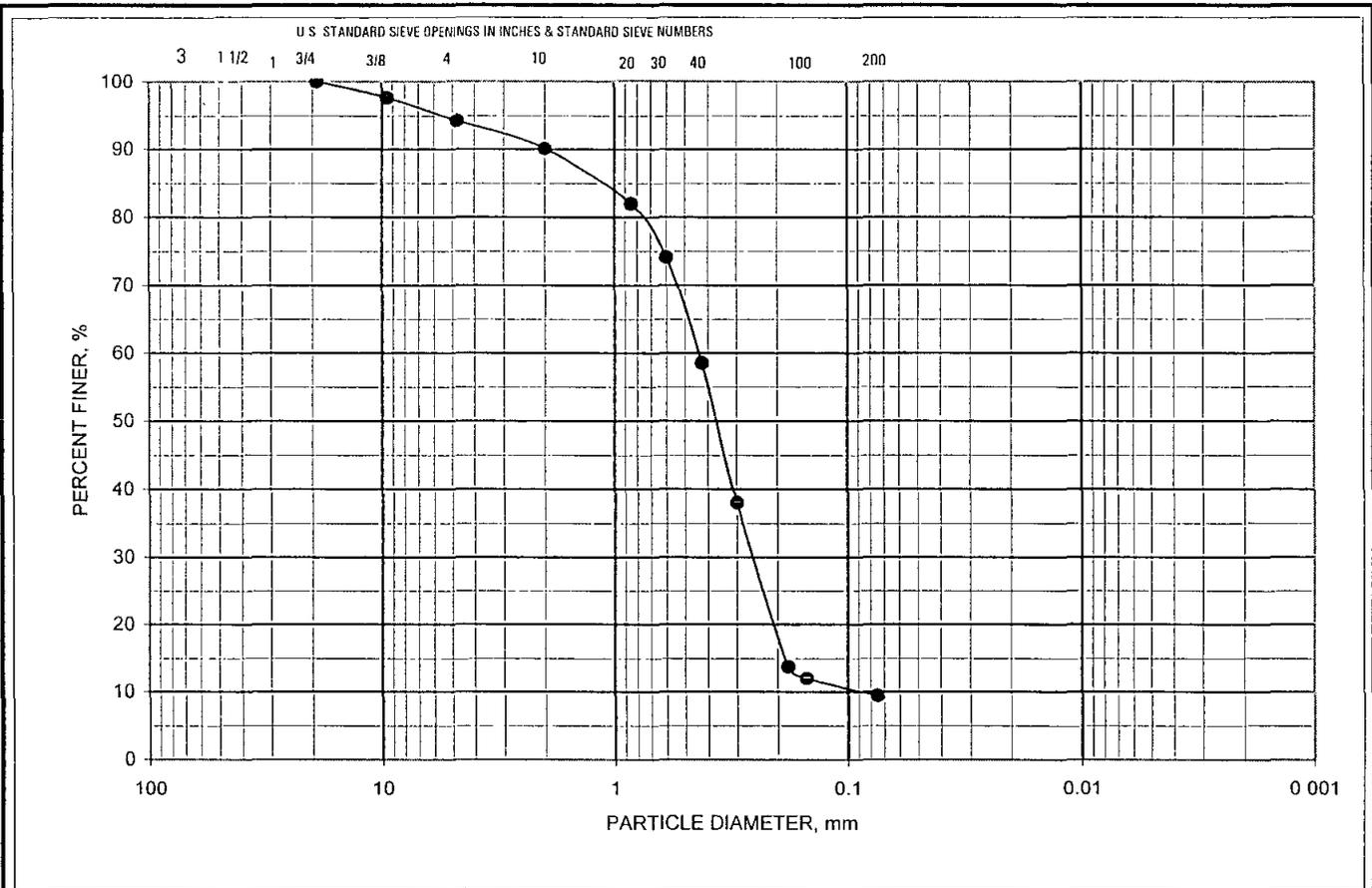
**GRAIN SIZE DISTRIBUTION CURVE**

BORING NO	SAMPLE NO.	DEPTH, feet	ASTM DESCRIPTION	UNIFIED SYMBOL	NAT. WC, %	ATTERBERG LIMITS		
						LL	PL	PI
P-9	NA	33.0' - 40.0'	Poorly Graded Sand	SP				

PROJECT White Bear Lake

K-4X10.2 CMIS JOB NO. 41017023 DATE 1/8/02





GRAVEL		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

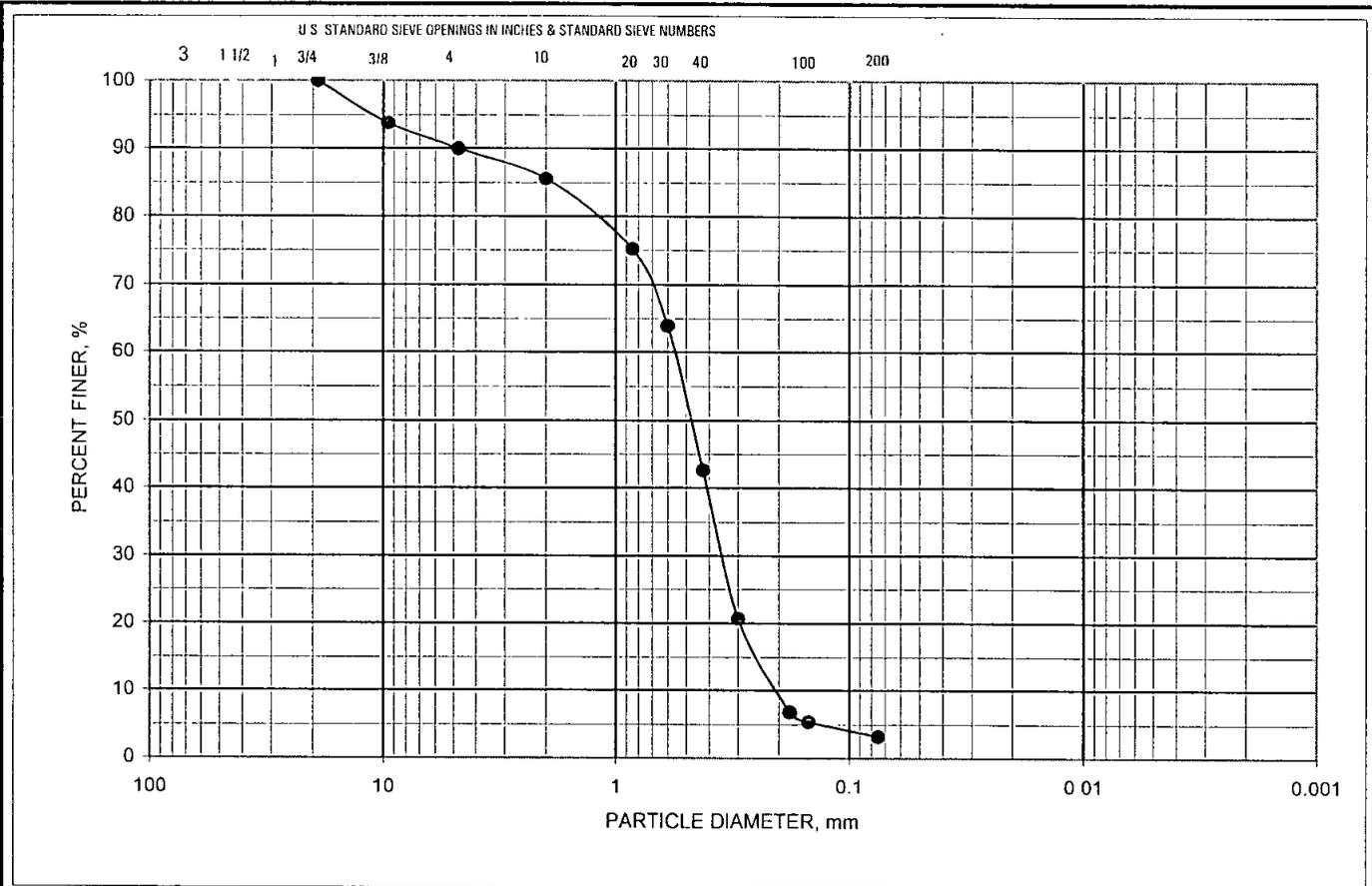
**GRAIN SIZE DISTRIBUTION CURVE**

BORING NO.	SAMPLE NO.	DEPTH, feet	ASTM DESCRIPTION	UNIFIED SYMBOL	NAT. WC, %	ATTERBERG LIMITS		
						LL	PL	PI
P 9	NA	43 0' - 55 0'	Poorly Graded Sand With Silt	SP SM				

PROJECT White Bear Lake

K - 8 1X10 3 CM/S JOB NO. 41017023 DATE 1/8/02





GRAVEL		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

GRAIN SIZE DISTRIBUTION CURVE

BORING NO	SAMPLE NO.	DEPTH, feet	ASTM DESCRIPTION	UNIFIED SYMBOL	NAT. WC, %	ATTERBERG LIMITS		
						LL	PL	PI
P-10	NA	33 0' - 45 0'	Poorly Graded Sand	SP				

PROJECT White Bear Lake

K - 4X10 2 CM/S JOB NO 41017023 DATE 1/8/02



Corporate Office & Laboratory  
1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436 • FAX: 920-469-8827  
800-7-ENCHEM



Madison Office & Laboratory  
525 Science Drive  
Madison, WI 53711  
608-232-3300 • FAX: 608-233-0502  
888-5-ENCHEM

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Client: TERRACON ENVIRONMENTAL

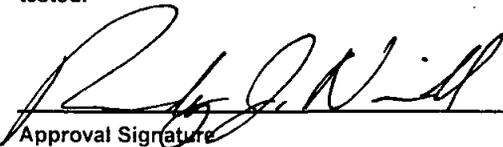
MDH LAB ID : 055-999-334

Sample No.	Field ID	Collection Date	Sample No.	Field ID	Collection Date
815977-001	P-7 4'-6'	11/28/01			
815977-002	P-7	11/28/01			
815977-003	P-8 6'-8'	11/28/01			
815977-004	P-8	11/28/01			
815977-005	P-9 33'-35'	11/29/01			
815977-006	P-9 53'-55'	11/29/01			
815977-007	P-9	11/29/01			
815977-008	P-10 28'-30'	11/29/01			
815977-009	P-10	11/29/01			
815977-010	H2O TRIP BLANK	11/29/01			
815977-011	MEOH BLANK	11/29/01			

Please visit our Internet homepage at: [www.enchem.com](http://www.enchem.com)

Soil VOC detects are corrected for the total solids, unless otherwise noted.

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. Reported results shall not be reproduced, except in full, without the written approval of the lab. The sample results relate only to the analytes of interest tested.

  
Approval Signature

  
Date

## En Chem, Inc. Cooler Receipt Log

Batch No. 815977

Project Name or ID 41017023

No. of Coolers: 2 Temps: 0.2°C / 1.2°C

A. Receipt Phase: Date cooler was opened: 12/4/01 By: L. Mauer

- 1: Were samples received on ice? (Must be ≤ 6 C).....  YES NO<sup>2</sup>
- 2: Was there a Temperature Blank?.....  YES NO
- 3: Were custody seals present and intact? (Record on COC)..... YES  NO
- 4: Are COC documents present?.....  YES NO<sup>2</sup>
- 5: Does this Project require quick turn around analysis?..... YES  NO
- 6: Is there any sub-work?..... YES  NO
- 7: Are there any short hold time tests?.....  YES NO
- 8: Are any samples nearing expiration of hold-time? (Within 2 days).....  YES<sup>1</sup> NO Contacted by/Who Nicas
- 9: Do any samples need to be Filtered or Preserved in the lab?..... YES<sup>1</sup>  NO Contacted by/Who \_\_\_\_\_

B. Check-in Phase: Date samples were Checked-In: 12/4/01 By: L. Mauer

- 1: Were all sample containers listed on the COC received and intact?..... YES  NO<sup>2</sup> NA
- 2: Sign the COC as received by En Chem. Completed.....  YES NO
- 3: Do sample labels match the COC? .....  YES NO<sup>2</sup>
- 4: Check sample pH of preserved samples. (Not VOCs) Completed..... YES NO  NA
- 5: Do samples have correct chemical preservation?..... YES  NO<sup>2</sup> NA
- 6: Are dissolved parameters field filtered?..... YES NO<sup>2</sup>  NA
- 7: Are sample volumes adequate for tests requested? .....  YES NO<sup>2</sup>
- 8: Are VOC samples free of bubbles >6mm ..... YES  NO<sup>2</sup> NA
- 9: Enter samples into logbook. Completed.....  YES NO
- 10: Place laboratory sample number on all containers and COC. Completed.....  YES NO
- 11: Complete Laboratory Tracking Sheet (LTS). Completed..... YES NO  NA
- 12: Start Nonconformance form. ....  YES NO NA
- 13: Initiate Subcontracting procedure. Completed..... YES NO  NA
- 14: Check laboratory sample number on all containers and COC. ....  YES NO NA

**Short Hold-time tests:**

48 Hours or less Coliform (6 hrs) Hexavalent Chromium (24 Hrs) BOD Nitrite or Nitrate Low Level Mercury Ortho Phosphorus Turbidity Surfactants Sulfite En Core Preservation Color	7 days Flashpoint TSS Total Solids TDS Sulfide Free Liquids Total Volatile Solids Aqueous Extractable Organics- ALL Unpreserved VOC's Ash	Footnotes 1 Notify proper lab group immediately. 2 Complete nonconformance memo.
--	---	--

Rev. 9/5/2001, Attachment to 1-REC-5.  
 Subject to QA Audit.

Reviewed by/date 9/13/12/6/01

## Organic Data Qualifiers

- B Analyte is present in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.
- C Elevated detection limit (see Sample Narrative).
- D Analyte value from diluted analysis.
- E Analyte concentration exceeds calibration range (see Sample Narrative).
- F Surrogate results outside control criteria or not available due to sample dilution.
- H(n) Extraction or analysis performed "n" days past holding time.
- J Qualitative evidence of analyte present: concentration detected is greater than the method detection limit but less than the reporting limit.
- K Detection limit may be elevated due to the presence of an unrequested analyte
- N Spiked sample recovery not within control limits.
- P The relative percent difference between the two GC columns for detected concentrations was greater than 40%.
- Q The analyte has been detected between the limit of detection (LOD) and limit of quantitation (LOQ). The results are qualified due to the uncertainty of analyte concentrations within this range.
- U The analyte was not detected above the reporting limit.
- W Sample received with headspace.
- X See Sample Narrative.
- & Laboratory Control Spike recovery not within control limits.
- \* Duplicate analyses not within control limits.
- SUB1 Assay was subcontracted to an approved lab.
- SUB2 Assay was subcontracted to En Chem Green Bay WI Cert. #405132750.

---

Lab#:	TestGroupID:	Comment:
815977-001 P-7 4'-6'	DRO-S	Results for analysis taken from a subsampled portion due to water leaking into the DRO jar. This does not conform to required sampling techniques.
815977-002 P-7	GRO-W	Early and late eluting peaks were present outside the window of analysis.
	DRO-W	Early eluting peaks were present outside the window of analysis.
815977-004 P-8	GRO-W	Early and late eluting peaks were present outside the window of analysis.
	DRO-W	Early and late eluting peaks were present outside the window of analysis.
815977-007 P-9	GRO-W	Early and late eluting peaks were present outside the window of analysis.
	DRO-W	Early and late eluting peaks were present outside the window of analysis.
815977-009 P-10	GRO-W	Early and late eluting peaks were present outside the window of analysis. ↵
	DRO-W	Early eluting peaks were present outside the window of analysis.

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-7 4'-6'

Lab Sample Number : 815977-001

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/10/01

Collection Date : 11/28/01

Matrix Type : SOIL

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Solids, percent	97.5		%		12/4/01	SM2540G	SM2540G

Organic Results

BTEX + MTBE - SOIL/METHANOL

Prep Method: 5030B/5035 Prep Date: 12/5/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
a,a,a-Trifluorotoluene	105	---	%Recov		12/6/01	SW846 M8021B
Benzene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Ethylbenzene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Methyl-tert-butyl-ether	< 25	25	ug/kg		12/6/01	SW846 M8021B
Toluene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Xylenes, -m, -p	< 25	25	ug/kg		12/6/01	SW846 M8021B
Xylene, -o	< 25	25	ug/kg		12/6/01	SW846 M8021B

Organic Results

BTEX BLANK

Prep Method: Prep Date: 12/5/01 Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
BTEX - Blank	998-30					

Organic Results

Preservation Date: 12/4/01

DIESEL RANGE ORGANICS - SOIL

Prep Method: Wi MOD DRO Prep Date: 12/4/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	< 3.3	3.3	mg/kg		12/4/01	Wi MOD DRO
Blank spike	91	---	%Recov		12/4/01	Wi MOD DRO
Blank spike duplicate	75	---	%Recov		12/4/01	Wi MOD DRO
Blank	< 5.0	5.0	mg/kg		12/4/01	Wi MOD DRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-7 4'-6'

Lab Sample Number : 815977-001

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/10/01

Collection Date : 11/28/01

Matrix Type : SOIL

Organic Results

GASOLINE RANGE ORGANICS - SOIL/METHANOL    Prep Method: Wi MOD GRO    Prep Date: 12/5/01    Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Gasoline Range Organics	< 2.6	2.6	mg/kg		12/6/01	Wi MOD GRO
Blank Spike	93	---	%Recov		12/6/01	Wi MOD GRO
Blank Spike Duplicate	88	---	%Recov		12/6/01	Wi MOD GRO
Blank	< 2.5	2.5	mg/kg		12/6/01	Wi MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-7

Lab Sample Number : 815977-002

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/28/01

Matrix Type : WATER

Organic Results

DIESEL RANGE ORGANICS - WATER

Prep Method: Wi MOD DRO Prep Date: 12/4/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	57000	2000	ug/l		12/4/01	Wi MOD DRO
Blank spike	101	---	%Recov		12/4/01	Wi MOD DRO
Blank spike duplicate	87	---	%Recov		12/4/01	Wi MOD DRO
Blank	< 50	50	ug/l		12/4/01	Wi MOD DRO

Organic Results

GASOLINE RANGE ORGANICS - WATER

Prep Method: Wi MOD GRO Prep Date: 12/5/01 Analyst: SMT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	47000	2500	ug/l		12/7/01	Wi MOD GRO
Blank Spike	102	---	%Recov		12/7/01	Wi MOD GRO
Blank Spike Duplicate	101	---	%Recov		12/7/01	Wi MOD GRO
Blank	< 50	50	ug/l		12/7/01	Wi MOD GRO

Organic Results

MDH 465 VOLATILES - WATER

Prep Method: SW846 5030B Prep Date: 12/5/01 Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 250	250	ug/L	&	12/8/01	SW846 8260B
Allyl Chloride	< 50	50	ug/L		12/8/01	SW846 8260B
Benzene	160	50	ug/L		12/8/01	SW846 8260B
Bromochloromethane	< 50	50	ug/L		12/8/01	SW846 8260B
Bromodichloromethane	< 50	50	ug/L		12/8/01	SW846 8260B
Bromoform	< 50	50	ug/L		12/8/01	SW846 8260B
Bromobenzene	< 50	50	ug/L		12/8/01	SW846 8260B
Bromomethane	< 50	50	ug/L		12/8/01	SW846 8260B
2-Butanone	< 250	250	ug/L		12/8/01	SW846 8260B

**- Analytical Report -**

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-7

Lab Sample Number : 815977-002

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/28/01

Matrix Type : WATER

s-Butylbenzene	54	50	ug/L	12/8/01	SW846 8260B
t-Butylbenzene	< 50	50	ug/L	12/8/01	SW846 8260B
n-Butylbenzene	< 50	50	ug/L	12/8/01	SW846 8260B
Carbon tetrachloride	< 50	50	ug/L	12/8/01	SW846 8260B
Chloroform	< 50	50	ug/L	12/8/01	SW846 8260B
Chlorobenzene	< 50	50	ug/L	12/8/01	SW846 8260B
Chlorodibromomethane	< 50	50	ug/L	12/8/01	SW846 8260B
Chloroethane	< 50	50	ug/L	12/8/01	SW846 8260B
Chloromethane	< 50	50	ug/L	12/8/01	SW846 8260B
2-Chlorotoluene	< 50	50	ug/L	12/8/01	SW846 8260B
4-Chlorotoluene	< 50	50	ug/L	12/8/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 50	50	ug/L	12/8/01	SW846 8260B
1,2-Dibromoethane	< 50	50	ug/L	12/8/01	SW846 8260B
Dibromomethane	< 50	50	ug/L	12/8/01	SW846 8260B
1,3-Dichlorobenzene	< 50	50	ug/L	12/8/01	SW846 8260B
1,4-Dichlorobenzene	< 50	50	ug/L	12/8/01	SW846 8260B
1,2-Dichloroethane	< 50	50	ug/L	12/8/01	SW846 8260B
1,2-Dichlorobenzene	< 50	50	ug/L	12/8/01	SW846 8260B
1,1-Dichloroethene	< 50	50	ug/L	12/8/01	SW846 8260B
cis-1,2-Dichloroethene	< 50	50	ug/L	12/8/01	SW846 8260B
Dichlorodifluoromethane	< 50	50	ug/L	12/8/01	SW846 8260B
trans-1,2-Dichloroethene	< 50	50	ug/L	12/8/01	SW846 8260B
Dichlorofluoromethane	< 50	50	ug/L	12/8/01	SW846 8260B
1,2-Dichloropropane	< 50	50	ug/L	12/8/01	SW846 8260B
1,1-Dichloroethane	< 50	50	ug/L	12/8/01	SW846 8260B
1,3-Dichloropropane	< 50	50	ug/L	12/8/01	SW846 8260B
2,2-Dichloropropane	< 50	50	ug/L	12/8/01	SW846 8260B
1,1-Dichloropropene	< 50	50	ug/L	12/8/01	SW846 8260B
cis-1,3-Dichloropropene	< 50	50	ug/L	12/8/01	SW846 8260B
trans-1,3-Dichloropropene	< 50	50	ug/L	12/8/01	SW846 8260B
Ethylbenzene	2400	50	ug/L	12/8/01	SW846 8260B
Diethyl ether	< 50	50	ug/L	12/8/01	SW846 8260B
Fluorotrichloromethane	< 50	50	ug/L	12/8/01	SW846 8260B
Hexachlorobutadiene	< 50	50	ug/L	12/8/01	SW846 8260B

**- Analytical Report -**

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Client : TERRACON ENVIRONMENTAL

Field ID : P-7

Report Date : 12/11/01

Lab Sample Number : 815977-002

Collection Date : 11/28/01

MDH LAB ID : 055-999-334

Matrix Type : WATER

Isopropylbenzene	180	50	ug/L	12/8/01	SW846 8260B
p-Isopropyltoluene	86	50	ug/L	12/8/01	SW846 8260B
Methylene chloride	< 50	50	ug/L	12/8/01	SW846 8260B
4-Methyl-2-pentanone	< 250	250	ug/L	12/8/01	SW846 8260B
Methyl-tert-butyl-ether	< 50	50	ug/L	12/8/01	SW846 8260B
Naphthalene	760	50	ug/L	12/8/01	SW846 8260B
n-Propylbenzene	570	50	ug/L	12/8/01	SW846 8260B
Styrene	< 50	50	ug/L	12/8/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 50	50	ug/L	12/8/01	SW846 8260B
1,1,1,2-Tetrachloroethane	< 50	50	ug/L	12/8/01	SW846 8260B
Tetrachloroethene	< 50	50	ug/L	12/8/01	SW846 8260B
Toluene	1600	50	ug/L	12/8/01	SW846 8260B
1,2,3-Trichlorobenzene	< 50	50	ug/L	12/8/01	SW846 8260B
1,2,4-Trichlorobenzene	< 50	50	ug/L	12/8/01	SW846 8260B
1,1,1-Trichloroethane	< 50	50	ug/L	12/8/01	SW846 8260B
1,1,2-Trichloroethane	< 50	50	ug/L	12/8/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 50	50	ug/L	12/8/01	SW846 8260B
1,2,4-Trimethylbenzene	4300	50	ug/L	12/8/01	SW846 8260B
Trichloroethene	< 50	50	ug/L	12/8/01	SW846 8260B
1,2,3-Trichloropropane	< 50	50	ug/L	12/8/01	SW846 8260B
Tetrahydrofuran	< 250	250	ug/L	12/8/01	SW846 8260B
1,3,5-Trimethylbenzene	1100	50	ug/L	12/8/01	SW846 8260B
Vinyl chloride	< 50	50	ug/L	12/8/01	SW846 8260B
Xylenes, -m, -p	10000	100	ug/L	12/8/01	SW846 8260B
Xylene, -o	3700	50	ug/L	12/8/01	SW846 8260B
4-Bromofluorobenzene	86	---	%Recov	12/8/01	SW846 8260B
Dibromofluoromethane	99	---	%Recov	12/8/01	SW846 8260B
Toluene-d8	99	---	%Recov	12/8/01	SW846 8260B

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-7

Lab Sample Number : 815977-002

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/28/01

Matrix Type : WATER

Organic Results

PAH - SEMIVOLATILES

Prep Method: SW846 3510 Prep Date: 12/5/01 Analyst: NJS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
2-Fluorobiphenyl	118	---	%Recov		12/5/01	SW846 8270C
Terphenyl-d14	100	---	%Recov		12/5/01	SW846 8270C
Nitrobenzene-d5	132	---	%Recov		12/5/01	SW846 8270C
Acenaphthene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Acenaphthylene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Anthracene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Benzo(a)anthracene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Benzo(a)pyrene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Benzo(b)fluoranthene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Benzo(g,h,i)perylene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Benzo(k)fluoranthene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Indeno(1,2,3-cd)pyrene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Chrysene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Dibenzo(a,h)anthracene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Fluoranthene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Fluorene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
2-Methylnaphthalene	370	53	ug/L	D	12/5/01	SW846 8270C
1-Methylnaphthalene	180	53	ug/L	D	12/5/01	SW846 8270C
Naphthalene	490	53	ug/L	D	12/5/01	SW846 8270C
Phenanthrene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C
Pyrene	< 1.1	1.1	ug/L		12/5/01	SW846 8270C

Organic Results

PAH-BLANK

Prep Method: SW846 3510C Prep Date: 12/5/01 Analyst: NJS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
PAH-Blank	922-60				12/5/01	SW846 8270C

---

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-7

Lab Sample Number : 815977-002

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/28/01

Matrix Type : WATER

---

Organic Results

VOC-BLK-W

Prep Method:

Prep Date:

Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
VOC-BLK	995-64					

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-8 6'-8'

Lab Sample Number : 815977-003

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/10/01

Collection Date : 11/28/01

Matrix Type : SOIL

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Solids, percent	92.7		%		12/4/01	SM2540G	SM2540G

Organic Results

BTEX + MTBE - SOIL/METHANOL

Prep Method: 5030B/5035 Prep Date: 12/5/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
a,a,a-Trifluorotoluene	104	---	%Recov		12/6/01	SW846 M8021B
Benzene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Ethylbenzene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Methyl-tert-butyl-ether	< 25	25	ug/kg		12/6/01	SW846 M8021B
Toluene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Xylenes, -m, -p	< 25	25	ug/kg		12/6/01	SW846 M8021B
Xylene, -o	< 25	25	ug/kg		12/6/01	SW846 M8021B

Organic Results

BTEX BLANK

Prep Method: Prep Date: 12/5/01 Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
BTEX - Blank	998-30					

Organic Results

Preservation Date: 12/4/01

DIESEL RANGE ORGANICS - SOIL

Prep Method: Wi MOD DRO Prep Date: 12/4/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	< 3.2	3.2	mg/kg		12/4/01	Wi MOD DRO
Blank spike	91	---	%Recov		12/4/01	Wi MOD DRO
Blank spike duplicate	75	---	%Recov		12/4/01	Wi MOD DRO
Blank	< 5.0	5.0	mg/kg		12/4/01	Wi MOD DRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-8 6'-8'

Lab Sample Number : 815977-003

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/10/01

Collection Date : 11/28/01

Matrix Type : SOIL

Organic Results

GASOLINE RANGE ORGANICS - SOIL/METHANOL    Prep Method: Wi MOD GRO    Prep Date: 12/5/01    Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Gasoline Range Organics	< 2.7	2.7	mg/kg		12/6/01	Wi MOD GRO
Blank Spike	93	---	%Recov		12/6/01	Wi MOD GRO
Blank Spike Duplicate	88	---	%Recov		12/6/01	Wi MOD GRO
Blank	< 2.5	2.5	mg/kg		12/6/01	Wi MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-8

Lab Sample Number : 815977-004

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/28/01

Matrix Type : WATER

Organic Results

DIESEL RANGE ORGANICS - WATER

Prep Method: Wi MOD DRO Prep Date: 12/4/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	13000	440	ug/l		12/4/01	Wi MOD DRO
Blank spike	101	---	%Recov		12/4/01	Wi MOD DRO
Blank spike duplicate	87	---	%Recov		12/4/01	Wi MOD DRO
Blank	< 50	50	ug/l		12/4/01	Wi MOD DRO

Organic Results

GASOLINE RANGE ORGANICS - WATER

Prep Method: Wi MOD GRO Prep Date: 12/5/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	28000	2500	ug/l	K	12/5/01	Wi MOD GRO
Blank Spike	103	---	%Recov		12/5/01	Wi MOD GRO
Blank Spike Duplicate	102	---	%Recov		12/5/01	Wi MOD GRO
Blank	< 50	50	ug/l		12/5/01	Wi MOD GRO

Organic Results

MDH 465 VOLATILES - WATER

Prep Method: SW846 5030B Prep Date: 12/5/01 Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 250	250	ug/L	&	12/6/01	SW846 8260B
Allyl Chloride	< 50	50	ug/L		12/6/01	SW846 8260B
Benzene	< 50	50	ug/L		12/6/01	SW846 8260B
Bromochloromethane	< 50	50	ug/L		12/6/01	SW846 8260B
Bromodichloromethane	< 50	50	ug/L		12/6/01	SW846 8260B
Bromoform	< 50	50	ug/L		12/6/01	SW846 8260B
Bromobenzene	< 50	50	ug/L		12/6/01	SW846 8260B
Bromomethane	< 50	50	ug/L		12/6/01	SW846 8260B
2-Butanone	< 250	250	ug/L		12/6/01	SW846 8260B

**- Analytical Report -**

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Client : TERRACON ENVIRONMENTAL

Field ID : P-8

Report Date : 12/11/01

Lab Sample Number : 815977-004

Collection Date : 11/28/01

MDH LAB ID : 055-999-334

Matrix Type : WATER

s-Butylbenzene	< 50	50	ug/L	12/6/01	SW846 8260B
t-Butylbenzene	< 50	50	ug/L	12/6/01	SW846 8260B
n-Butylbenzene	< 50	50	ug/L	12/6/01	SW846 8260B
Carbon tetrachloride	< 50	50	ug/L	12/6/01	SW846 8260B
Chloroform	< 50	50	ug/L	12/6/01	SW846 8260B
Chlorobenzene	< 50	50	ug/L	12/6/01	SW846 8260B
Chlorodibromomethane	< 50	50	ug/L	12/6/01	SW846 8260B
Chloroethane	< 50	50	ug/L	12/6/01	SW846 8260B
Chloromethane	< 50	50	ug/L	12/6/01	SW846 8260B
2-Chlorotoluene	< 50	50	ug/L	12/6/01	SW846 8260B
4-Chlorotoluene	< 50	50	ug/L	12/6/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 50	50	ug/L	12/6/01	SW846 8260B
1,2-Dibromoethane	< 50	50	ug/L	12/6/01	SW846 8260B
Dibromomethane	< 50	50	ug/L	12/6/01	SW846 8260B
1,3-Dichlorobenzene	< 50	50	ug/L	12/6/01	SW846 8260B
1,4-Dichlorobenzene	< 50	50	ug/L	12/6/01	SW846 8260B
1,2-Dichloroethane	< 50	50	ug/L	12/6/01	SW846 8260B
1,2-Dichlorobenzene	< 50	50	ug/L	12/6/01	SW846 8260B
1,1-Dichloroethene	< 50	50	ug/L	12/6/01	SW846 8260B
cis-1,2-Dichloroethene	< 50	50	ug/L	12/6/01	SW846 8260B
Dichlorodifluoromethane	< 50	50	ug/L	12/6/01	SW846 8260B
trans-1,2-Dichloroethene	< 50	50	ug/L	12/6/01	SW846 8260B
Dichlorofluoromethane	< 50	50	ug/L	12/6/01	SW846 8260B
1,2-Dichloropropane	< 50	50	ug/L	12/6/01	SW846 8260B
1,1-Dichloroethane	< 50	50	ug/L	12/6/01	SW846 8260B
1,3-Dichloropropane	< 50	50	ug/L	12/6/01	SW846 8260B
2,2-Dichloropropane	< 50	50	ug/L	12/6/01	SW846 8260B
1,1-Dichloropropene	< 50	50	ug/L	12/6/01	SW846 8260B
cis-1,3-Dichloropropene	< 50	50	ug/L	12/6/01	SW846 8260B
trans-1,3-Dichloropropene	< 50	50	ug/L	12/6/01	SW846 8260B
Ethylbenzene	2000	50	ug/L	12/6/01	SW846 8260B
Diethyl ether	< 50	50	ug/L	12/6/01	SW846 8260B
Fluorotrichloromethane	< 50	50	ug/L	12/6/01	SW846 8260B
Hexachlorobutadiene	< 50	50	ug/L	12/6/01	SW846 8260B

**- Analytical Report -**

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-8

Lab Sample Number : 815977-004

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/28/01

Matrix Type : WATER

Isopropylbenzene	83	50	ug/L	12/6/01	SW846 8260B
p-Isopropyltoluene	< 50	50	ug/L	12/6/01	SW846 8260B
Methylene chloride	< 50	50	ug/L	12/6/01	SW846 8260B
4-Methyl-2-pentanone	< 250	250	ug/L	12/6/01	SW846 8260B
Methyl-tert-butyl-ether	< 50	50	ug/L	12/6/01	SW846 8260B
Naphthalene	540	50	ug/L	12/6/01	SW846 8260B
n-Propylbenzene	240	50	ug/L	12/6/01	SW846 8260B
Styrene	< 50	50	ug/L	12/6/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 50	50	ug/L	12/6/01	SW846 8260B
1,1,1,2-Tetrachloroethane	< 50	50	ug/L	12/6/01	SW846 8260B
Tetrachloroethene	< 50	50	ug/L	12/6/01	SW846 8260B
Toluene	580	50	ug/L	12/6/01	SW846 8260B
1,2,3-Trichlorobenzene	< 50	50	ug/L	12/6/01	SW846 8260B
1,2,4-Trichlorobenzene	< 50	50	ug/L	12/6/01	SW846 8260B
1,1,1-Trichloroethane	< 50	50	ug/L	12/6/01	SW846 8260B
1,1,2-Trichloroethane	< 50	50	ug/L	12/6/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 50	50	ug/L	12/6/01	SW846 8260B
1,2,4-Trimethylbenzene	2200	50	ug/L	12/6/01	SW846 8260B
Trichloroethene	< 50	50	ug/L	12/6/01	SW846 8260B
1,2,3-Trichloropropane	< 50	50	ug/L	12/6/01	SW846 8260B
Tetrahydrofuran	< 250	250	ug/L	12/6/01	SW846 8260B
1,3,5-Trimethylbenzene	560	50	ug/L	12/6/01	SW846 8260B
Vinyl chloride	< 50	50	ug/L	12/6/01	SW846 8260B
Xylenes, -m, -p	9300	100	ug/L	12/6/01	SW846 8260B
Xylene, -o	2300	50	ug/L	12/6/01	SW846 8260B
4-Bromofluorobenzene	83	---	%Recov	12/6/01	SW846 8260B
Dibromofluoromethane	96	---	%Recov	12/6/01	SW846 8260B
Toluene-d8	96	---	%Recov	12/6/01	SW846 8260B

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-8

Lab Sample Number : 815977-004

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/28/01

Matrix Type : WATER

Organic Results

PAH - SEMIVOLATILES

Prep Method: SW846 3510 Prep Date: 12/5/01 Analyst: NJS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
2-Fluorobiphenyl	118	---	%Recov		12/5/01	SW846 8270C
Terphenyl-d14	101	---	%Recov		12/5/01	SW846 8270C
Nitrobenzene-d5	146	---	%Recov		12/5/01	SW846 8270C
Acenaphthene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Acenaphthylene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Anthracene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(a)anthracene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(a)pyrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(b)fluoranthene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(g,h,i)perylene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(k)fluoranthene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Indeno(1,2,3-cd)pyrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Chrysene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Dibenzo(a,h)anthracene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Fluoranthene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Fluorene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
2-Methylnaphthalene	170	52	ug/L	D	12/5/01	SW846 8270C
1-Methylnaphthalene	98	52	ug/L	D	12/5/01	SW846 8270C
Naphthalene	<i>Other value larger</i> 510	52	ug/L	D	12/5/01	SW846 8270C
Phenanthrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Pyrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C

Organic Results

PAH-BLANK

Prep Method: SW846 3510C Prep Date: 12/5/01 Analyst: NJS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
PAH-Blank	922-60				12/5/01	SW846 8270C

---

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-8

Lab Sample Number : 815977-004

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/28/01

Matrix Type : WATER

---

Organic Results

VOC-BLK-W

Prep Method:

Prep Date:

Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
VOC-BLK	995-64					

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-9 33'-35'

Lab Sample Number : 815977-005

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/10/01

Collection Date : 11/29/01

Matrix Type : SOIL

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Solids, percent	93.0		%		12/4/01	SM2540G	SM2540G

Organic Results

Preservation Date: 12/4/01

DIESEL RANGE ORGANICS - SOIL

Prep Method: Wi MOD DRO Prep Date: 12/4/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	< 3.8	3.8	mg/kg		12/4/01	Wi MOD DRO
Blank spike	91	---	%Recov		12/4/01	Wi MOD DRO
Blank spike duplicate	75	---	%Recov		12/4/01	Wi MOD DRO
Blank	< 5.0	5.0	mg/kg		12/4/01	Wi MOD DRO

*Sample jar w/ methanol preservative leaked & was unable to be analyzed*

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-9 53'-55'

Lab Sample Number : 815977-006

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/10/01

Collection Date : 11/29/01

Matrix Type : SOIL

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Solids, percent	84.6		%		12/4/01	SM2540G	SM2540G

Organic Results

BTEX + MTBE - SOIL/METHANOL

Prep Method: 5030B/5035 Prep Date: 12/5/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
a,a,a-Trifluorotoluene	104	---	%Recov		12/6/01	SW846 M8021B
Benzene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Ethylbenzene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Methyl-tert-butyl-ether	< 25	25	ug/kg		12/6/01	SW846 M8021B
Toluene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Xylenes, -m, -p	< 25	25	ug/kg		12/6/01	SW846 M8021B
Xylene, -o	< 25	25	ug/kg		12/6/01	SW846 M8021B

Organic Results

BTEX BLANK

Prep Method: Prep Date: 12/5/01 Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
BTEX - Blank	998-30					

Organic Results

Preservation Date: 12/4/01

DIESEL RANGE ORGANICS - SOIL

Prep Method: Wi MOD DRO Prep Date: 12/4/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	< 4.6	4.6	mg/kg		12/4/01	Wi MOD DRO
Blank spike	91	---	%Recov		12/4/01	Wi MOD DRO
Blank spike duplicate	75	---	%Recov		12/4/01	Wi MOD DRO
Blank	< 5.0	5.0	mg/kg		12/4/01	Wi MOD DRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-9 53'-55'

Lab Sample Number : 815977-006

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/10/01

Collection Date : 11/29/01

Matrix Type : SOIL

Organic Results

GASOLINE RANGE ORGANICS - SOIL/METHANOL    Prep Method: Wi MOD GRO    Prep Date: 12/5/01    Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Gasoline Range Organics	< 3.0	3.0	mg/kg		12/6/01	Wi MOD GRO
Blank Spike	93	---	%Recov		12/6/01	Wi MOD GRO
Blank Spike Duplicate	88	---	%Recov		12/6/01	Wi MOD GRO
Blank	< 2.5	2.5	mg/kg		12/6/01	Wi MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-9

Lab Sample Number : 815977-007

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/29/01

Matrix Type : WATER

Organic Results

DIESEL RANGE ORGANICS - WATER

Prep Method: Wi MOD DRO Prep Date: 12/4/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	7500	250	ug/l		12/4/01	Wi MOD DRO
Blank spike	101	---	%Recov		12/4/01	Wi MOD DRO
Blank spike duplicate	87	---	%Recov		12/4/01	Wi MOD DRO
Blank	< 50	50	ug/l		12/4/01	Wi MOD DRO

Organic Results

GASOLINE RANGE ORGANICS - WATER

Prep Method: Wi MOD GRO Prep Date: 12/5/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	24000	1000	ug/l		12/5/01	Wi MOD GRO
Blank Spike	103	---	%Recov		12/5/01	Wi MOD GRO
Blank Spike Duplicate	102	---	%Recov		12/5/01	Wi MOD GRO
Blank	< 50	50	ug/l		12/5/01	Wi MOD GRO

Organic Results

MDH 465 VOLATILES - WATER

Prep Method: SW846 5030B Prep Date: 12/5/01 Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 100	100	ug/L	&	12/6/01	SW846 8260B
Allyl Chloride	< 20	20	ug/L		12/6/01	SW846 8260B
Benzene	21	20	ug/L		12/6/01	SW846 8260B
Bromochloromethane	< 20	20	ug/L		12/6/01	SW846 8260B
Bromodichloromethane	< 20	20	ug/L		12/6/01	SW846 8260B
Bromoform	< 20	20	ug/L		12/6/01	SW846 8260B
Bromobenzene	< 20	20	ug/L		12/6/01	SW846 8260B
Bromomethane	< 20	20	ug/L		12/6/01	SW846 8260B
2-Butanone	< 100	100	ug/L		12/6/01	SW846 8260B

**- Analytical Report -**

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-9

Lab Sample Number : 815977-007

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/29/01

Matrix Type : WATER

s-Butylbenzene	< 20	20	ug/L	12/6/01	SW846 8260B
t-Butylbenzene	< 20	20	ug/L	12/6/01	SW846 8260B
n-Butylbenzene	< 20	20	ug/L	12/6/01	SW846 8260B
Carbon tetrachloride	< 20	20	ug/L	12/6/01	SW846 8260B
Chloroform	< 20	20	ug/L	12/6/01	SW846 8260B
Chlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
Chlorodibromomethane	< 20	20	ug/L	12/6/01	SW846 8260B
Chloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
Chloromethane	< 20	20	ug/L	12/6/01	SW846 8260B
2-Chlorotoluene	< 20	20	ug/L	12/6/01	SW846 8260B
4-Chlorotoluene	< 20	20	ug/L	12/6/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 20	20	ug/L	12/6/01	SW846 8260B
1,2-Dibromoethane	< 20	20	ug/L	12/6/01	SW846 8260B
Dibromomethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,3-Dichlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
1,4-Dichlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
1,2-Dichloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,2-Dichlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
1,1-Dichloroethene	< 20	20	ug/L	12/6/01	SW846 8260B
cis-1,2-Dichloroethene	< 20	20	ug/L	12/6/01	SW846 8260B
Dichlorodifluoromethane	< 20	20	ug/L	12/6/01	SW846 8260B
trans-1,2-Dichloroethene	< 20	20	ug/L	12/6/01	SW846 8260B
Dichlorofluoromethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,2-Dichloropropane	< 20	20	ug/L	12/6/01	SW846 8260B
1,1-Dichloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,3-Dichloropropane	< 20	20	ug/L	12/6/01	SW846 8260B
2,2-Dichloropropane	< 20	20	ug/L	12/6/01	SW846 8260B
1,1-Dichloropropene	< 20	20	ug/L	12/6/01	SW846 8260B
cis-1,3-Dichloropropene	< 20	20	ug/L	12/6/01	SW846 8260B
trans-1,3-Dichloropropene	< 20	20	ug/L	12/6/01	SW846 8260B
Ethylbenzene	1500	20	ug/L	12/6/01	SW846 8260B
Diethyl ether	< 20	20	ug/L	12/6/01	SW846 8260B
Fluorotrichloromethane	< 20	20	ug/L	12/6/01	SW846 8260B
Hexachlorobutadiene	< 20	20	ug/L	12/6/01	SW846 8260B

**- Analytical Report -**

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-9

Lab Sample Number : 815977-007

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/29/01

Matrix Type : WATER

Isopropylbenzene	100	20	ug/L	12/6/01	SW846 8260B
p-Isopropyltoluene	40	20	ug/L	12/6/01	SW846 8260B
Methylene chloride	< 20	20	ug/L	12/6/01	SW846 8260B
4-Methyl-2-pentanone	< 100	100	ug/L	12/6/01	SW846 8260B
Methyl-tert-butyl-ether	< 20	20	ug/L	12/6/01	SW846 8260B
Naphthalene	500	20	ug/L	12/6/01	SW846 8260B
n-Propylbenzene	300	20	ug/L	12/6/01	SW846 8260B
Styrene	< 20	20	ug/L	12/6/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,1,1,2-Tetrachloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
Tetrachloroethene	< 20	20	ug/L	12/6/01	SW846 8260B
Toluene	65	20	ug/L	12/6/01	SW846 8260B
1,2,3-Trichlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
1,2,4-Trichlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
1,1,1-Trichloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,1,2-Trichloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,2,4-Trimethylbenzene	2500	20	ug/L	12/6/01	SW846 8260B
Trichloroethene	< 20	20	ug/L	12/6/01	SW846 8260B
1,2,3-Trichloropropane	< 20	20	ug/L	12/6/01	SW846 8260B
Tetrahydrofuran	< 100	100	ug/L	12/6/01	SW846 8260B
1,3,5-Trimethylbenzene	670	20	ug/L	12/6/01	SW846 8260B
Vinyl chloride	< 20	20	ug/L	12/6/01	SW846 8260B
Xylenes, -m, -p	6100	40	ug/L	12/6/01	SW846 8260B
Xylene, -o	1100	20	ug/L	12/6/01	SW846 8260B
4-Bromofluorobenzene	86	---	%Recov	12/6/01	SW846 8260B
Dibromofluoromethane	96	---	%Recov	12/6/01	SW846 8260B
Toluene-d8	99	---	%Recov	12/6/01	SW846 8260B

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-9

Lab Sample Number : 815977-007

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/29/01

Matrix Type : WATER

Organic Results

PAH - SEMIVOLATILES

Prep Method: SW846 3510 Prep Date: 12/5/01 Analyst: NJS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
2-Fluorobiphenyl	82	---	%Recov		12/5/01	SW846 8270C
Terphenyl-d14	97	---	%Recov		12/5/01	SW846 8270C
Nitrobenzene-d5	72	---	%Recov		12/5/01	SW846 8270C
Acenaphthene	1.6	1.0	ug/L		12/5/01	SW846 8270C
Acenaphthylene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Anthracene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(a)anthracene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(a)pyrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(b)fluoranthene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(g,h,i)perylene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(k)fluoranthene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Indeno(1,2,3-cd)pyrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Chrysene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Dibenzo(a,h)anthracene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Fluoranthene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Fluorene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
2-Methylnaphthalene	220	50	ug/L	D	12/6/01	SW846 8270C
1-Methylnaphthalene	140	50	ug/L	D	12/6/01	SW846 8270C
Naphthalene	410	50	ug/L	D	12/6/01	SW846 8270C
Phenanthrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Pyrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C

Organic Results

PAH-BLANK

Prep Method: SW846 3510C Prep Date: 12/5/01 Analyst: NJS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
PAH-Blank	922-60				12/5/01	SW846 8270C

*UOC Analysis  
value higher*

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Client : TERRACON ENVIRONMENTAL

Field ID : P-9

Report Date : 12/11/01

Lab Sample Number : 815977-007

Collection Date : 11/29/01

MDH LAB ID : 055-999-334

Matrix Type : WATER

Organic Results

VOC-BLK-W

Prep Method:

Prep Date:

Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
VOC-BLK	995-64					

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-10 28'-30'

Lab Sample Number : 815977-008

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/10/01

Collection Date : 11/29/01

Matrix Type : SOIL

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Solids, percent	96.9		%		12/4/01	SM2540G	SM2540G

Organic Results

BTEX + MTBE - SOIL/METHANOL

Prep Method: 5030B/5035 Prep Date: 12/5/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
a,a,a-Trifluorotoluene	104	---	%Recov		12/6/01	SW846 M8021B
Benzene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Ethylbenzene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Methyl-tert-butyl-ether	< 25	25	ug/kg		12/6/01	SW846 M8021B
Toluene	< 25	25	ug/kg		12/6/01	SW846 M8021B
Xylenes, -m, -p	< 25	25	ug/kg		12/6/01	SW846 M8021B
Xylene, -o	< 25	25	ug/kg		12/6/01	SW846 M8021B

Organic Results

BTEX BLANK

Prep Method: Prep Date: 12/5/01 Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
BTEX - Blank	998-30					

Organic Results

Preservation Date: 12/4/01

DIESEL RANGE ORGANICS - SOIL

Prep Method: Wi MOD DRO Prep Date: 12/4/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	< 3.9	3.9	mg/kg		12/4/01	Wi MOD DRO
Blank spike	91	---	%Recov		12/4/01	Wi MOD DRO
Blank spike duplicate	75	---	%Recov		12/4/01	Wi MOD DRO
Blank	< 5.0	5.0	mg/kg		12/4/01	Wi MOD DRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-10 28'-30'

Lab Sample Number : 815977-008

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/10/01

Collection Date : 11/29/01

Matrix Type : SOIL

Organic Results

GASOLINE RANGE ORGANICS - SOIL/METHANOL    Prep Method: Wi MOD GRO    Prep Date: 12/5/01    Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Gasoline Range Organics	< 2.6	2.6	mg/kg		12/6/01	Wi MOD GRO
Blank Spike	93	---	%Recov		12/6/01	Wi MOD GRO
Blank Spike Duplicate	88	---	%Recov		12/6/01	Wi MOD GRO
Blank	< 2.5	2.5	mg/kg		12/6/01	Wi MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

**- Analytical Report -**

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-10

Lab Sample Number : 815977-009

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/29/01

Matrix Type : WATER

**Organic Results**

DIESEL RANGE ORGANICS - WATER

Prep Method: Wi MOD DRO    Prep Date: 12/4/01    Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	13000	600	ug/l		12/5/01	Wi MOD DRO
Blank spike	101	---	%Recov		12/5/01	Wi MOD DRO
Blank spike duplicate	87	---	%Recov		12/5/01	Wi MOD DRO
Blank	< 50	50	ug/l		12/5/01	Wi MOD DRO

**Organic Results**

GASOLINE RANGE ORGANICS - WATER

Prep Method: Wi MOD GRO    Prep Date: 12/5/01    Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	22000	1000	ug/l		12/5/01	Wi MOD GRO
Blank Spike	103	---	%Recov		12/5/01	Wi MOD GRO
Blank Spike Duplicate	102	---	%Recov		12/5/01	Wi MOD GRO
Blank	< 50	50	ug/l		12/5/01	Wi MOD GRO

**Organic Results**

MDH 465 VOLATILES - WATER

Prep Method: SW846 5030B    Prep Date: 12/5/01    Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 100	100	ug/L	&	12/6/01	SW846 8260B
Allyl Chloride	< 20	20	ug/L		12/6/01	SW846 8260B
Benzene	< 20	20	ug/L		12/6/01	SW846 8260B
Bromochloromethane	< 20	20	ug/L		12/6/01	SW846 8260B
Bromodichloromethane	< 20	20	ug/L		12/6/01	SW846 8260B
Bromoform	< 20	20	ug/L		12/6/01	SW846 8260B
Bromobenzene	< 20	20	ug/L		12/6/01	SW846 8260B
Bromomethane	< 20	20	ug/L		12/6/01	SW846 8260B
2-Butanone	< 100	100	ug/L		12/6/01	SW846 8260B

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Client : TERRACON ENVIRONMENTAL

Field ID : P-10

Report Date : 12/11/01

Lab Sample Number : 815977-009

Collection Date : 11/29/01

MDH LAB ID : 055-999-334

Matrix Type : WATER

s-Butylbenzene	< 20	20	ug/L	12/6/01	SW846 8260B
t-Butylbenzene	< 20	20	ug/L	12/6/01	SW846 8260B
n-Butylbenzene	< 20	20	ug/L	12/6/01	SW846 8260B
Carbon tetrachloride	< 20	20	ug/L	12/6/01	SW846 8260B
Chloroform	< 20	20	ug/L	12/6/01	SW846 8260B
Chlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
Chlorodibromomethane	< 20	20	ug/L	12/6/01	SW846 8260B
Chloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
Chloromethane	< 20	20	ug/L	12/6/01	SW846 8260B
2-Chlorotoluene	< 20	20	ug/L	12/6/01	SW846 8260B
4-Chlorotoluene	< 20	20	ug/L	12/6/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 20	20	ug/L	12/6/01	SW846 8260B
1,2-Dibromoethane	< 20	20	ug/L	12/6/01	SW846 8260B
Dibromomethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,3-Dichlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
1,4-Dichlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
1,2-Dichloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,2-Dichlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
1,1-Dichloroethene	< 20	20	ug/L	12/6/01	SW846 8260B
cis-1,2-Dichloroethene	< 20	20	ug/L	12/6/01	SW846 8260B
Dichlorodifluoromethane	< 20	20	ug/L	12/6/01	SW846 8260B
trans-1,2-Dichloroethene	< 20	20	ug/L	12/6/01	SW846 8260B
Dichlorofluoromethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,2-Dichloropropane	< 20	20	ug/L	12/6/01	SW846 8260B
1,1-Dichloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,3-Dichloropropane	< 20	20	ug/L	12/6/01	SW846 8260B
2,2-Dichloropropane	< 20	20	ug/L	12/6/01	SW846 8260B
1,1-Dichloropropene	< 20	20	ug/L	12/6/01	SW846 8260B
cis-1,3-Dichloropropene	< 20	20	ug/L	12/6/01	SW846 8260B
trans-1,3-Dichloropropene	< 20	20	ug/L	12/6/01	SW846 8260B
Ethylbenzene	1200	20	ug/L	12/6/01	SW846 8260B
Diethyl ether	< 20	20	ug/L	12/6/01	SW846 8260B
Fluorotrichloromethane	< 20	20	ug/L	12/6/01	SW846 8260B
Hexachlorobutadiene	< 20	20	ug/L	12/6/01	SW846 8260B

**- Analytical Report -**

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Client : TERRACON ENVIRONMENTAL

Field ID : P-10

Report Date : 12/11/01

Lab Sample Number : 815977-009

Collection Date : 11/29/01

MDH LAB ID : 055-999-334

Matrix Type : WATER

Isopropylbenzene	90	20	ug/L	12/6/01	SW846 8260B
p-Isopropyltoluene	38	20	ug/L	12/6/01	SW846 8260B
Methylene chloride	< 20	20	ug/L	12/6/01	SW846 8260B
4-Methyl-2-pentanone	< 100	100	ug/L	12/6/01	SW846 8260B
Methyl-tert-butyl-ether	< 20	20	ug/L	12/6/01	SW846 8260B
Naphthalene <i>PAH value ↑</i>	430	20	ug/L	12/6/01	SW846 8260B
n-Propylbenzene	280	20	ug/L	12/6/01	SW846 8260B
Styrene	< 20	20	ug/L	12/6/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,1,1,2-Tetrachloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
Tetrachloroethene	< 20	20	ug/L	12/6/01	SW846 8260B
Toluene	110	20	ug/L	12/6/01	SW846 8260B
1,2,3-Trichlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
1,2,4-Trichlorobenzene	< 20	20	ug/L	12/6/01	SW846 8260B
1,1,1-Trichloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,1,2-Trichloroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 20	20	ug/L	12/6/01	SW846 8260B
1,2,4-Trimethylbenzene	2100	20	ug/L	12/6/01	SW846 8260B
Trichloroethene	< 20	20	ug/L	12/6/01	SW846 8260B
1,2,3-Trichloropropane	< 20	20	ug/L	12/6/01	SW846 8260B
Tetrahydrofuran	< 100	100	ug/L	12/6/01	SW846 8260B
1,3,5-Trimethylbenzene	550	20	ug/L	12/6/01	SW846 8260B
Vinyl chloride	< 20	20	ug/L	12/6/01	SW846 8260B
Xylenes, -m, -p	4300	40	ug/L	12/6/01	SW846 8260B
Xylene, -o	1300	20	ug/L	12/6/01	SW846 8260B
4-Bromofluorobenzene	84	---	%Recov	12/6/01	SW846 8260B
Dibromofluoromethane	96	---	%Recov	12/6/01	SW846 8260B
Toluene-d8	97	---	%Recov	12/6/01	SW846 8260B

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : P-10

Lab Sample Number : 815977-009

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/29/01

Matrix Type : WATER

Organic Results

PAH - SEMIVOLATILES

Prep Method: SW846 3510 Prep Date: 12/5/01 Analyst: NJS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
2-Fluorobiphenyl	117	---	%Recov		12/5/01	SW846 8270C
Terphenyl-d14	99	---	%Recov		12/5/01	SW846 8270C
Nitrobenzene-d5	80	---	%Recov		12/5/01	SW846 8270C
Acenaphthene	3.0	1.0	ug/L		12/5/01	SW846 8270C
Acenaphthylene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Anthracene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(a)anthracene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(a)pyrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(b)fluoranthene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(g,h,i)perylene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Benzo(k)fluoranthene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Indeno(1,2,3-cd)pyrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Chrysene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Dibenzo(a,h)anthracene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Fluoranthene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Fluorene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
2-Methylnaphthalene	380	60	ug/L	D	12/6/01	SW846 8270C
1-Methylnaphthalene	190	60	ug/L	D	12/6/01	SW846 8270C
Naphthalene	510	60	ug/L	D	12/6/01	SW846 8270C
Phenanthrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C
Pyrene	< 1.0	1.0	ug/L		12/5/01	SW846 8270C

Organic Results

PAH-BLANK

Prep Method: SW846 3510C Prep Date: 12/5/01 Analyst: NJS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
PAH-Blank	922-60				12/5/01	SW846 8270C

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Client : TERRACON ENVIRONMENTAL

Field ID : P-10

Report Date : 12/11/01

Lab Sample Number : 815977-009

Collection Date : 11/29/01

MDH LAB ID : 055-999-334

Matrix Type : WATER

Organic Results

VOC-BLK-W

Prep Method:

Prep Date:

Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
VOC-BLK	995-64					

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : H2O TRIP BLANK

Lab Sample Number : 815977-010

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/11/01

Collection Date : 11/29/01

Matrix Type : WATER

Organic Results

GASOLINE RANGE ORGANICS - WATER

Prep Method: Wi MOD GRO Prep Date: 12/5/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	< 50	50	ug/l		12/5/01	Wi MOD GRO
Blank Spike	103	---	%Recov		12/5/01	Wi MOD GRO
Blank Spike Duplicate	102	---	%Recov		12/5/01	Wi MOD GRO
Blank	< 50	50	ug/l		12/5/01	Wi MOD GRO

Organic Results

MDH 465 VOLATILES - WATER

Prep Method: SW846 5030B Prep Date: 12/5/01 Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 5.0	5.0	ug/L	&	12/6/01	SW846 8260B
Allyl Chloride	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Benzene	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Bromochloromethane	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Bromobenzene	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Bromomethane	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		12/6/01	SW846 8260B
s-Butylbenzene	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
t-Butylbenzene	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
n-Butylbenzene	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Chloroform	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Chlorodibromomethane	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Chloroethane	< 1.0	1.0	ug/L		12/6/01	SW846 8260B
Chloromethane	< 1.0	1.0	ug/L		12/6/01	SW846 8260B

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Client : TERRACON ENVIRONMENTAL

Field ID : H2O TRIP BLANK

Report Date : 12/11/01

Lab Sample Number : 815977-010

Collection Date : 11/29/01

MDH LAB ID : 055-999-334

Matrix Type : WATER

2-Chlorotoluene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
4-Chlorotoluene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,3-Dichlorobenzene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,4-Dichlorobenzene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,2-Dichlorobenzene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
cis-1,2-Dichloroethene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Dichlorodifluoromethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
trans-1,2-Dichloroethene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Dichlorofluoromethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,3-Dichloropropane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
2,2-Dichloropropane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,1-Dichloropropene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Ethylbenzene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Diethyl ether	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Fluorotrichloromethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Hexachlorobutadiene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Isopropylbenzene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
p-Isopropyltoluene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Methylene chloride	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L	12/6/01	SW846 8260B
Methyl-tert-butyl-ether	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Naphthalene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
n-Propylbenzene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Styrene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Client : TERRACON ENVIRONMENTAL

Field ID : H2O TRIP BLANK

Report Date : 12/11/01

Lab Sample Number : 815977-010

Collection Date : 11/29/01

MDH LAB ID : 055-999-334

Matrix Type : WATER

1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Tetrachloroethene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Toluene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,2,3-Trichlorobenzene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,2,4-Trichlorobenzene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,2,4-Trimethylbenzene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Trichloroethene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Tetrahydrofuran	< 5.0	5.0	ug/L	12/6/01	SW846 8260B
1,3,5-Trimethylbenzene	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Vinyl chloride	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
Xylenes, -m, -p	< 2.0	2.0	ug/L	12/6/01	SW846 8260B
Xylene, -o	< 1.0	1.0	ug/L	12/6/01	SW846 8260B
4-Bromofluorobenzene	90	---	%Recov	12/6/01	SW846 8260B
Dibromofluoromethane	92	---	%Recov	12/6/01	SW846 8260B
Toluene-d8	100	---	%Recov	12/6/01	SW846 8260B

Organic Results

VOC-BLK-W

Prep Method:

Prep Date:

Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
VOC-BLK	995-64					

- Analytical Report -

Project Name : FORMER VACANT PARKING LOT

Project Number : 41017023

Field ID : MEOH BLANK

Lab Sample Number : 815977-011

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 12/10/01

Collection Date : 11/29/01

Matrix Type : METHANOL

Organic Results

BTEX + MTBE - METHANOL

Prep Method: SW846 5030B Prep Date: 12/5/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
a,a,a-Trifluorotoluene	104	---	%Recov		12/6/01	SW846 M8021B
Benzene	< 25	25	ug/l		12/6/01	SW846 M8021B
Ethylbenzene	< 25	25	ug/l		12/6/01	SW846 M8021B
Methyl-tert-butyl-ether	< 25	25	ug/l		12/6/01	SW846 M8021B
Toluene	< 25	25	ug/l		12/6/01	SW846 M8021B
Xylenes, -m, -p	< 25	25	ug/l		12/6/01	SW846 M8021B
Xylene, -o	< 25	25	ug/l		12/6/01	SW846 M8021B

Organic Results

BTEX BLANK

Prep Method: Prep Date: 12/5/01 Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
BTEX - Blank	998-30					

Organic Results

GASOLINE RANGE ORGANICS - METHANOL

Prep Method: Wi MOD GRO Prep Date: 12/5/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Gasoline Range Organics	< 2500	2500	ug/L		12/6/01	Wi MOD GRO
Blank Spike	93	---	%Recov		12/6/01	Wi MOD GRO
Blank Spike Duplicate	88	---	%Recov		12/6/01	Wi MOD GRO
Blank	< 50	50	ug/L		12/6/01	Wi MOD GRO

(Please Print Legibly)

Company Name: Terracon  
 Branch or Location: White Bear Lake  
 Project Contact: Paul Wiese  
 Telephone: 651-770-1500  
 Project Number: 41017023  
 Project Name: Formel Viccourt Parking Lot <sup>St Louis Park</sup>  
 Project State: Minnesota  
 Sampled By (Print): Jade M. Schulz



1241 Bellevue St., Suite 9  
 Green Bay, WI 54302  
 920-469-2436  
 FAX 920-469-8827

525 Science Drive  
 Madison, WI 53711  
 608-232-3300  
 FAX: 608-233-0502

### CHAIN OF CUSTODY

62810

Page 1 of 1

\*Preservation Codes  
 A=None B=HCL C=H2SO4 D=HNO3 E=EnCore F=Methanol G=NaOH  
 H = Sodium Bisulfate Solution I = Other  
 FILTERED? (YES/NO)  
 PRESERVATION (CODE)\*

P.O. # \_\_\_\_\_ Quote # \_\_\_\_\_  
 Mail Report To: Paul Wiese  
 Company: Terracon  
 Address: 3535 Hoffman Rd E  
White Bear Lake, MN 55110

**Data Package Options**  
 (please circle if requested)  
 Results Only  
 EnChem Level III (Subject to Surcharge)  
 EnChem Level IV (Subject to Surcharge)

Regulatory Program  
 UST  
 RCRA  
 SDWA  
 NPDES  
 CERCLA  
 Matrix Codes  
 W=Water S=Soil A=Air  
 C=Charcoal B=Biota SI=Sludge

ANALYSES REQUESTED  
 BTEX/MIRE/GRO-50:1  
 DRO-SOIL  
 VOC MDH 465F  
 DRO  
 GRO  
 PAH'S (EPA 4270)  
 TOTAL # OF BOTTLES SENT

Invoice To: \_\_\_\_\_  
 Company: SAME  
 Address: \_\_\_\_\_  
 Mail Invoice To: \_\_\_\_\_

LABORATORY ID (Lab Use Only)	FIELD ID	COLLECTION		MATRIX	ANALYSES REQUESTED										CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)		
		DATE	TIME		BTEX/MIRE/GRO-50:1	DRO-SOIL	VOC MDH 465F	DRO	GRO	PAH'S (EPA 4270)	TOTAL # OF BOTTLES SENT							
001	P-7 4'-6'	11/29/01	14:00	S	X	X											3	1-402, 1-202 M, 1-203 M
002	P-7		14:30	W			X	X	X	X							8	2-16amber, 6-40ml g.c.
003	P-8 6'-8'		15:00	S	X	X											3	1-402, 1-202 M, 1-203 M
004	P-8		15:30	W			X	X	X	X							8	2-16amber, 6-40ml g.c.
005	P-9 33'-35'	11/29/01	9:00	S	X	X											3	1-402, 1-202 M, 1-203 M
006	P-9 53'-55'		9:30	S	X	X											3	
007	P-9		11:30	W			X	X	X	X							8	2-16amber, 6-40ml g.c.
008	P-10 28'-30'		13:30	S	X	X											3	1-402, 1-202 M, 1-203 M
009	P-10		11:00	W			X	X	X	X							8	2-16amber, 6-40ml g.c.
010	H2O Trip blank*																	1-40ml H2O g.c.
011	MeOH blank*																	1-202 MeOH blank g.c.

**Rush Turnaround Time Requested (TAT) - Prelim**  
 (Rush TAT subject to approval/surcharge)  
 Date Needed: 2 wks standard  
 Transmit Prelim Rush Results by (circle):  
 Phone Fax E-Mail  
 Phone #:  
 Fax #:  
 E-Mail Address:

Relinquished By: Jade M Schulz Date/Time: 11/30/01 8:00  
 Relinquished By: Hubert Date/Time: 12/4/01 8:00  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received By: L. Wauson Date/Time: 12/4/01 8:00  
 Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

En Chem Project No: 215977  
 Sample Receipt Temp: 0.8°C / 1.2°C  
 Sample Receipt pH: N/A  
 Cooler Custody Seal: Present  
 Present / Not Present  
 Intact / Not Intact

Samples on HOLD are subject to special pricing and release of liability.

Surrogate - GC VOA	Aqueous		Low Level Solids		Methanol Solids	
	LCL	UCL	LCL	UCL	LCL	UCL
$\alpha,\alpha,\alpha$ -Trifluorotoluene	75	134	41	158	66	154

Surrogate - GCMS VOA	Aqueous		Low Level Solids		Methanol Solids	
	LCL	UCL	LCL	UCL	LCL	UCL
Dibromofluoromethane	51	131	58	129	49	138
Toluene- $d_8$	60	135	63	139	45	147
4-Bromofluorobenzene	64	152	65	117	56	126

Surrogate - GCMS PAH	Aqueous		Solids	
	LCL	UCL	LCL	UCL
Nitrobenzene- $d_5$	38	166	36	121
2-Fluorobiphenyl	35	119	35	103
Terphenyl- $d_{14}$	51	139	32	123

Surrogate - GCMS BNA	Aqueous		Solids	
	LCL	UCL	LCL	UCL
2-Fluorophenol	10	84	29	111
Phenol- $d_5$	13	50	43	106
2-Chlorophenol- $d_4$	58	107	32	122
1,2-Dichlorobenzene- $d_4$	48	113	32	108
Nitrobenzene- $d_5$	51	117	36	109
2-Fluorobiphenyl	49	109	43	103
2,4,6-Tribromophenol	28	142	29	114
Terphenyl- $d_{14}$	12	151	34	145

Surrogate - HPLC PAH	Aqueous		Solids	
	LCL	UCL	LCL	UCL
9,10-Diphenylanthracene	48	156	-	-

Surrogate - GC PCB	Aqueous		Solids	
	LCL	UCL	LCL	UCL
Decachlorobiphenyl	50	150	31	124

FORM 1  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK995-64

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS212062001

Matrix: (soil/water) WATER

Lab Sample ID: VBLK995-64

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: 12060104

Level: (low/med) LOW

Date Received: \_\_\_\_\_

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 12/06/01

GC Column: DB-624 ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-83-9	DICHLORODIFLUOROMETHANE	1.00	U
74-87-3	CHLOROMETHANE	1.00	U
75-01-4	VINYL CHLORIDE	1.00	U
74-83-9	BROMOMETHANE	1.00	U
75-00-3	CHLOROETHANE	1.00	U
75-43-4	DICHLOROFLUOROMETHANE	1.00	U
75-69-4	TRICHLOROFLUOROMETHANE	1.00	U
60-29-7	DIETHYL ETHER	1.00	U
75-35-4	1 1-DICHLOROETHENE	1.00	U
76-13-1	1 1 2-TRICHLOROTRIFLUOROETHA	1.00	U
67-64-1	ACETONE	5.00	U
107-05-1	ALLYL CHLORIDE	1.00	U
75-09-2	METHYLENE CHLORIDE	1.00	U
156-60-5	TRANS-1 2-DICHLOROETHENE	1.00	U
1634-04-4	METHYL T-BUTYL ETHER	1.00	U
75-34-3	1 1-DICHLOROETHANE	1.00	U
590-20-7	2 2-DICHLOROPROPANE	1.00	U
156-59-2	CIS-1 2-DICHLOROETHENE	1.00	U
78-93-3	2-BUTANONE	5.00	U
74-97-5	BROMOCHLOROMETHANE	1.00	U
109-99-9	TETRAHYDROFURAN	5.00	U
67-66-3	CHLOROFORM	1.00	U
71-55-6	1 1 1-TRICHLOROETHANE	1.00	U
56-23-5	CARBON TETRACHLORIDE	1.00	U
563-58-6	1 1-DICHLOROPROPENE	1.00	U
71-43-2	BENZENE	1.00	U
107-06-2	1 2-DICHLOROETHANE	1.00	U
79-01-6	TRICHLOROETHENE	1.00	U
78-87-5	1 2-DICHLOROPROPANE	1.00	U
74-95-3	DIBROMOMETHANE	1.00	U
75-27-4	BROMODICHLOROMETHANE	1.00	U
10061-01-5	CIS-1 3-DICHLOROPROPENE	1.00	U
108-10-1	4-METHYL-2-PENTANONE	5.00	U

FORM 1  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBK995-64

Lab Name: EN CHEM - GREEN BAY Contract: \_\_\_\_\_  
 Lab Code: ENCHEMGB Case No.: \_\_\_\_\_ SAS No.: \_\_\_\_\_ SDG No.: MS212062001  
 Matrix: (soil/water) WATER Lab Sample ID: VBK995-64  
 Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 12060104  
 Level: (low/med) LOW Date Received: \_\_\_\_\_  
 % Moisture: not dec. \_\_\_\_\_ Date Analyzed: 12/06/01  
 GC Column: DB-624 ID: 0.18 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-88-3	TOLUENE	1.00	U
10061-02-6	TRANS-1 3-DICHLOROPROPENE	1.00	U
79-00-5	1 1 2-TRICHLOROETHANE	1.00	U
127-18-4	TETRACHLOROETHENE	1.00	U
142-28-9	1 3-DICHLOROPROPANE	1.00	U
124-48-1	DIBROMOCHLOROMETHANE	1.00	U
106-93-4	1 2-DIBROMOETHANE	1.00	U
108-90-7	CHLOROBENZENE	1.00	U
630-26-6	1 1 1 2-TETRACHLOROETHANE	1.00	U
100-41-4	ETHYL BENZENE	1.00	U
108-38-3	M- P-XYLENE	2.00	U
95-47-6	O-XYLENE	1.00	U
100-42-5	STYRENE	1.00	U
75-25-2	BROMOFORM	1.00	U
98-82-8	ISOPROPYLBENZENE	1.00	U
108-86-1	BROMOBENZENE	1.00	U
79-34-5	1 1 2 2-TETRACHLOROETHANE	1.00	U
96-18-4	1 2 3-TRICHLOROPROPANE	1.00	U
103-65-1	N-PROPYLBENZENE	1.00	U
95-49-8	2-CHLOROTOLUENE	1.00	U
106-43-4	4-CHLOROTOLUENE	1.00	U
108-67-8	1 3 5-TRIMETHYLBENZENE	1.00	U
98-06-6	TERT-BUTYLBENZENE	1.00	U
95-63-6	1 2 4-TRIMETHYLBENZENE	1.00	U
135-98-8	SEC-BUTYLBENZENE	1.00	U
541-73-1	1 3-DICHLOROBENZENE	1.00	U
99-878-6	P-ISOPROPYLTOLUENE (CYMENE)	1.00	U
106-46-7	1 4-DICHLOROBENZENE	1.00	U
95-50-1	1 2-DICHLOROBENZENE	1.00	U
104-51-8	N-BUTYLBENZENE	1.00	U
96-12-8	1 2-DIBROMO-3-CHLOROPROPANE	1.00	U
95-63-6	1 2 4-TRICHLOROBENZENE	1.00	U
87-68-3	HEXACHLOROBUTADIENE	1.00	U

FORM 1  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VLK995-64

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB Case No.:

SAS No.:

SDG No.: MS212062001

Matrix: (soil/water) WATER

Lab Sample ID: VLK995-64

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: 12060104

Level: (low/med) LOW

Date Received: \_\_\_\_\_

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 12/06/01

GC Column: DB-624 ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

91-20-3-----	NAPHTHALENE	1.00	U
96-18-4-----	1 2 3-TRICHLOROBENZENE	1.00	U

FORM 3  
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS212062001

Matrix Spike - Sample No.: 815700-034

*Batch Q.C.*

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT (ug/L)	MS AMOUNT (ug/L)	MS % REC #	QC. LIMITS REC.
CHLOROMETHANE	50.00	0.00	43.87	88	30-136
VINYL CHLORIDE	50.00	0.00	47.47	95	53-131
BROMOMETHANE	50.00	0.00	44.54	89	48-130
CHLOROETHANE	50.00	0.00	49.73	99	67-121
1 1-DICHLOROETHENE	50.00	0.00	53.38	107	80-120
ACETONE	50.00	0.00	43.82	88	32-110
CARBON DISULFIDE	50.00	0.00	52.87	106	64-128
METHYLENE CHLORIDE	50.00	0.00	50.40	101	70-130
TRANS-1 2-DICHLOROETHEN	50.00	0.00	50.55	101	80-120
1 1-DICHLOROETHANE	50.00	0.00	50.61	101	77-122
VINYL ACETATE	50.00	0.00	38.76	78	70-130
CIS-1 2-DICHLOROETHENE	50.00	0.00	48.50	97	80-120
2-BUTANONE	50.00	0.00	40.59	81	40-160
CHLOROFORM	50.00	0.00	50.00	100	80-120
1 1 1-TRICHLOROETHANE	50.00	0.00	53.59	107	80-120
CARBON TETRACHLORIDE	50.00	0.00	50.90	102	80-120
BENZENE	50.00	0.00	50.96	102	78-122
1 2-DICHLOROETHANE	50.00	0.00	47.34	95	80-120
TRICHLOROETHENE	50.00	0.00	51.38	103	80-120
1 2-DICHLOROPROPANE	50.00	0.00	50.58	101	80-120
BROMODICHLOROMETHANE	50.00	0.00	46.12	92	80-120
CIS-1 3-DICHLOROPROPENE	50.00	0.00	49.35	99	80-120
4-METHYL-2-PENTANONE	50.00	0.00	45.05	90	77-120
TOLUENE	50.00	0.00	52.62	105	80-120
TRANS-1 3-DICHLOROPROPE	50.00	0.00	50.76	102	80-120
1 1 2-TRICHLOROETHANE	50.00	0.00	47.01	94	80-120
TETRACHLOROETHENE	50.00	0.00	50.60	101	85-122
2-HEXANONE	50.00	0.00	43.29	86	40-160

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

COMMENTS:

---

FORM 3  
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS212062001

Matrix Spike - Sample No.: 815700-034

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT (ug/L)	MS AMOUNT (ug/L)	MS % REC #	QC. LIMITS REC.
DIBROMOCHLOROMETHANE	50.00	0.00	47.34	95	76-120
CHLOROBENZENE	50.00	0.00	49.22	98	80-120
ETHYL BENZENE	50.00	0.00	51.77	104	80-120
M- P-XYLENE	100.00	0.00	101.85	102	70-130
O-XYLENE	50.00	0.00	50.02	100	70-130
STYRENE	50.00	0.00	50.44	101	80-120
BROMOFORM	50.00	0.00	43.26	86	64-124
1 1 2 2-TETRACHLOROETHA	50.00	0.00	42.99	86	67-125

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

COMMENTS:

---



---

FORM 3  
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS212062001

Matrix Spike - Sample No.: 815700-034

COMPOUND	SPIKE ADDED (ug/L)	MSD AMOUNT (ug/L)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
CHLOROMETHANE	50.00	41.52	83	6	20	30-136
VINYL CHLORIDE	50.00	46.87	94	1	20	53-131
BROMOMETHANE	50.00	41.93	84	6	14	48-130
CHLOROETHANE	50.00	48.48	97	2	10	67-121
1 1-DICHLOROETHENE	50.00	51.63	103	4	10	80-120
ACETONE	50.00	41.88	84	5	20	32-110
CARBON DISULFIDE	50.00	50.44	101	5	20	64-128
METHYLENE CHLORIDE	50.00	47.24	94	7	30	70-130
TRANS-1 2-DICHLOROETHEN	50.00	50.34	101	0	10	80-120
1 1-DICHLOROETHANE	50.00	49.45	99	2	10	77-122
VINYL ACETATE	50.00	38.95	78	0	30	70-130
CIS-1 2-DICHLOROETHENE	50.00	46.59	93	4	20	80-120
2-BUTANONE	50.00	40.48	81	0	20	40-160
CHLOROFORM	50.00	50.16	100	0	10	80-120
1 1 1-TRICHLOROETHANE	50.00	53.03	106	1	20	80-120
CARBON TETRACHLORIDE	50.00	49.85	100	2	11	80-120
BENZENE	50.00	50.07	100	2	10	78-122
1 2-DICHLOROETHANE	50.00	47.64	95	0	10	80-120
TRICHLOROETHENE	50.00	50.21	100	3	10	80-120
1 2-DICHLOROPROPANE	50.00	50.59	101	0	10	80-120
BROMODICHLOROMETHANE	50.00	46.82	94	2	10	80-120
CIS-1 3-DICHLOROPROPENE	50.00	48.20	96	3	10	80-120
4-METHYL-2-PENTANONE	50.00	46.03	92	2	20	77-120
TOLUENE	50.00	51.48	103	2	10	80-120
TRANS-1 3-DICHLOROPROPE	50.00	49.40	99	3	10	80-120
1 1 2-TRICHLOROETHANE	50.00	46.62	93	1	10	80-120
TETRACHLOROETHENE	50.00	49.30	99	2	10	85-122
2-HEXANONE	50.00	41.55	83	4	20	40-160

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

COMMENTS: \_\_\_\_\_

FORM 3  
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS212062001

Matrix Spike - Sample No.: 815700-034

COMPOUND	SPIKE ADDED (ug/L)	MSD AMOUNT (ug/L)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
DIBROMOCHLOROMETHANE	50.00	45.34	91	4	10	76-120
CHLOROBENZENE	50.00	48.00	96	2	10	80-120
ETHYL BENZENE	50.00	49.50	99	5	10	80-120
M- P-XYLENE	100.00	99.83	100	2	30	70-130
O-XYLENE	50.00	47.52	95	5	30	70-130
STYRENE	50.00	48.97	98	3	10	80-120
BROMOFORM	50.00	40.39	81	6	20	64-124
1 1 2 2-TETRACHLOROETHA	50.00	45.43	91	6	14	67-125

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

RPD: 0 out of 36 outside limits

Spike Recovery: 0 out of 72 outside limits

COMMENTS:

---

FORM 3  
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS212062001

Matrix Spike - Sample No.: VBLK995-64

COMPOUND	SPIKE ADDED (ug/L)	BLANK AMOUNT (ug/L)	BS AMOUNT (ug/L)	BS % REC #	QC. LIMITS REC.
CHLOROMETHANE	50.00	0.00	43.19	86	50-150
VINYL CHLORIDE	50.00	0.00	48.61	97	50-150
BROMOMETHANE	50.00	0.00	39.92	80	50-150
CHLOROETHANE	50.00	0.00	47.95	96	50-150
1 1-DICHLOROETHENE	50.00	0.00	52.42	105	83-127
ACETONE	50.00	0.00	33.39	67*	70-130
CARBON DISULFIDE	50.00	0.00	51.86	104	70-130
METHYLENE CHLORIDE	50.00	0.00	48.30	97	70-130
TRANS-1 2-DICHLOROETHEN	50.00	0.00	50.96	102	70-130
1 1-DICHLOROETHANE	50.00	0.00	49.33	99	70-130
VINYL ACETATE	50.00	0.00	37.61	75	70-130
CIS-1 2-DICHLOROETHENE	50.00	0.00	47.44	95	70-130
2-BUTANONE	50.00	0.00	39.18	78	70-130
CHLOROFORM	50.00	0.00	49.43	99	70-130
1 1 1-TRICHLOROETHANE	50.00	0.00	51.88	104	70-130
CARBON TETRACHLORIDE	50.00	0.00	49.99	100	70-130
BENZENE	50.00	0.00	49.76	100	79-122
1 2-DICHLOROETHANE	50.00	0.00	46.66	93	70-130
TRICHLOROETHENE	50.00	0.00	51.75	104	84-118
1 2-DICHLOROPROPANE	50.00	0.00	50.04	100	70-130
BROMODICHLOROMETHANE	50.00	0.00	46.82	94	70-130
CIS-1 3-DICHLOROPROPENE	50.00	0.00	49.79	100	70-130
4-METHYL-2-PENTANONE	50.00	0.00	41.87	84	70-130
TOLUENE	50.00	0.00	52.87	106	89-117
TRANS-1 3-DICHLOROPROPE	50.00	0.00	49.28	98	70-130
1 1 2-TRICHLOROETHANE	50.00	0.00	47.02	94	70-130
TETRACHLOROETHENE	50.00	0.00	50.32	101	70-130
2-HEXANONE	50.00	0.00	38.91	78	70-130

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

COMMENTS:

---

FORM 3  
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS212062001

Matrix Spike - Sample No.: VBLK995-64

COMPOUND	SPIKE ADDED (ug/L)	BLANK AMOUNT (ug/L)	BS AMOUNT (ug/L)	BS % REC #	QC. LIMITS REC.
DIBROMOCHLOROMETHANE	50.00	0.00	45.50	91	70-130
CHLOROBENZENE	50.00	0.00	49.71	99	89-114
ETHYL BENZENE	50.00	0.00	51.96	104	70-130
M- P-XYLENE	100.00	0.00	102.95	103	70-130
O-XYLENE	50.00	0.00	50.48	101	70-130
STYRENE	50.00	0.00	51.45	103	70-130
BROMOFORM	50.00	0.00	41.25	82	70-130
1 1 2 2-TETRACHLOROETHA	50.00	0.00	42.36	85	70-130

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

COMMENTS:

---



---

FORM 3  
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS212062001

Matrix Spike - Sample No.: VBLK995-64

COMPOUND	SPIKE ADDED (ug/L)	BSD AMOUNT (ug/L)	BSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
CHLOROMETHANE	50.00	43.19	86	0	50	50-150
VINYL CHLORIDE	50.00	48.33	97	0	50	50-150
BROMOMETHANE	50.00	42.73	85	6	50	50-150
CHLOROETHANE	50.00	48.85	98	2	50	50-150
1 1-DICHLOROETHENE	50.00	51.94	104	1	10	83-127
ACETONE	50.00	42.05	84	22	40	70-130
CARBON DISULFIDE	50.00	50.88	102	2	40	70-130
METHYLENE CHLORIDE	50.00	48.90	98	1	40	70-130
TRANS-1 2-DICHLOROETHEN	50.00	51.42	103	1	40	70-130
1 1-DICHLOROETHANE	50.00	49.29	98	1	40	70-130
VINYL ACETATE	50.00	35.75	72	4	40	70-130
CIS-1 2-DICHLOROETHENE	50.00	48.43	97	2	40	70-130
2-BUTANONE	50.00	41.80	84	7	40	70-130
CHLOROFORM	50.00	49.68	99	0	40	70-130
1 1 1-TRICHLOROETHANE	50.00	52.07	104	0	40	70-130
CARBON TETRACHLORIDE	50.00	50.24	100	0	40	70-130
BENZENE	50.00	50.24	100	0	11	79-122
1 2-DICHLOROETHANE	50.00	47.66	95	2	40	70-130
TRICHLOROETHENE	50.00	52.91	106	2	12	84-118
1 2-DICHLOROPROPANE	50.00	51.36	103	3	40	70-130
BROMODICHLOROMETHANE	50.00	46.65	93	1	40	70-130
CIS-1 3-DICHLOROPROPENE	50.00	49.45	99	1	40	70-130
4-METHYL-2-PENTANONE	50.00	44.06	88	5	40	70-130
TOLUENE	50.00	52.03	104	2	11	89-117
TRANS-1 3-DICHLOROPROPE	50.00	49.12	98	0	40	70-130
1 1 2-TRICHLOROETHANE	50.00	46.66	93	1	40	70-130
TETRACHLOROETHENE	50.00	49.96	100	1	40	70-130
2-HEXANONE	50.00	42.20	84	7	40	70-130

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

COMMENTS:

---

FORM 3  
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS212062001

Matrix Spike - Sample No.: VBLK995-64

COMPOUND	SPIKE ADDED (ug/L)	BSD AMOUNT (ug/L)	BSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
DIBROMOCHLOROMETHANE	50.00	44.83	90	1	40	70-130
CHLOROBENZENE	50.00	49.37	99	0	10	89-114
ETHYL BENZENE	50.00	51.82	104	0	40	70-130
M- P-XYLENE	100.00	101.76	102	1	40	70-130
O-XYLENE	50.00	48.60	97	4	40	70-130
STYRENE	50.00	50.51	101	2	40	70-130
BROMOFORM	50.00	41.14	82	0	40	70-130
1 1 2 2-TETRACHLOROETHA	50.00	42.60	85	0	40	70-130

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

RPD: 0 out of 36 outside limits

Spike Recovery: 1 out of 72 outside limits

COMMENTS:

---



---

FORM 3  
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS212062001

Matrix Spike - Sample No.: VBLK995-64

COMPOUND	SPIKE ADDED (ug/L)	BSD AMOUNT (ug/L)	BSD % REC #	% RPD #	QC LIMITS	
					RPD	REC:
DIBROMOCHLOROMETHANE	50.00	44.83	90	1	40	70-130
CHLOROBENZENE	50.00	49.37	99	0	10	89-114
ETHYL BENZENE	50.00	51.82	104	0	40	70-130
M- P-XYLENE	100.00	101.76	102	1	40	70-130
O-XYLENE	50.00	48.60	97	4	40	70-130
STYRENE	50.00	50.51	101	2	40	70-130
BROMOFORM	50.00	41.14	82	0	40	70-130
1 1 2 2-TETRACHLOROETHA	50.00	42.60	85	0	40	70-130

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

RPD: 0 out of 36 outside limits

Spike Recovery: 1 out of 72 outside limits

COMMENTS:

---

FORM 1  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BLK922-60

Lab Name: EN CHEM

Contract:

Lab Code:

Case No.:

SAC No.:

SDG No.: 815977

Matrix: (soil/water) WATER

Lab Sample ID: BLK922-60

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: 12050105

Level: (low/med) LOW

Date Received: \_\_\_\_\_

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_

Date Extracted: 12/05/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/05/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	0.0500	U
91-57-6	2-Methylnaphthalene	0.0500	U
	1-Methylnaphthalene	0.0500	U
208-96-8	Acenaphthylene	0.0500	U
83-32-9	Acenaphthene	0.0500	U
86-73-7	Fluorene	0.0500	U
85-01-8	Phenanthrene	0.0500	U
120-12-7	Anthracene	0.0500	U
206-44-0	Fluoranthene	0.0500	U
129-00-0	Pyrene	0.0500	U
56-55-3	Benzo(a)anthracene	0.0500	U
218-01-9	Chrysene	0.0500	U
205-99-2	Benzo(b)fluoranthene	0.0500	U
207-08-9	Benzo(k)fluoranthene	0.0500	U
50-32-8	Benzo(a)pyrene	0.0500	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.0500	U
53-70-3	Dibenzo(a,h)anthracene	0.0500	U
191-24-2	Benzo(g,h,i)perylene	0.0500	U

FORM 3  
WATER SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: EN CHEM

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 120501.B

Matrix Spike - Sample No.: BLK922-60

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Naphthalene	0.200	0.000	0.233	116	46-117
2-Methylnaphthalene	0.200	0.000	0.237	118	44-122
1-Methylnaphthalene	0.200	0.000	0.175	88	47-119
Acenaphthylene	0.200	0.000	0.248	124	33-136
Acenaphthene	0.200	0.000	0.231	116	48-121
Fluorene	0.200	0.000	0.236	118	52-120
Phenanthrene	0.200	0.000	0.230	115	46-140
Anthracene	0.200	0.000	0.250	125	42-136
Fluoranthene	0.200	0.000	0.250	125	66-130
Pyrene	0.200	0.000	0.277	138	55-157
Benzo (a) anthracene	0.200	0.000	0.287	144	68-170
Chrysene	0.200	0.000	0.269	134	72-135
Benzo (b) fluoranthene	0.200	0.000	0.283	142	51-167
Benzo (k) fluoranthene	0.200	0.000	0.262	131	55-137
Benzo (a) pyrene	0.200	0.000	0.298	149	80-159
Indeno (1, 2, 3-cd) pyrene	0.200	0.000	0.295	148	53-150
Dibenzo (a, h) anthracene	0.200	0.000	0.289	144	38-160
Benzo (g, h, i) perylene	0.200	0.000	0.293	146	63-152

# Column to be used to flag recovery and RPD values with an asterisk  
\* Values outside of QC limits

COMMENTS: \_\_\_\_\_

FORM 3  
WATER SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: EN CHEM

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 120501.B

Matrix Spike - Sample No.: BLK922-60

COMPOUND	SPIKE ADDED (ug/L)	BSD CONCENTRATION (ug/L)	BSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Naphthalene	0.200	0.233	116	0	42	46-117
2-Methylnaphthalene	0.200	0.231	116	2	43	44-122
1-Methylnaphthalene	0.200	0.177	88	0	33	47-119
Acenaphthylene	0.200	0.249	124	0	37	33-136
Acenaphthene	0.200	0.233	116	0	42	48-121
Fluorene	0.200	0.240	120	2	26	52-120
Phenanthrene	0.200	0.228	114	1	49	46-140
Anthracene	0.200	0.252	126	1	34	42-136
Fluoranthene	0.200	0.255	128	2	29	66-130
Pyrene	0.200	0.277	138	0	36	55-157
Benzo (a) anthracene	0.200	0.291	146	1	47	68-170
Chrysene	0.200	0.269	134	0	35	72-135
Benzo (b) fluoranthene	0.200	0.300	150	5	39	51-167
Benzo (k) fluoranthene	0.200	0.270	135	3	36	55-137
Benzo (a) pyrene	0.200	0.305	152	2	28	80-159
Indeno (1,2,3-cd) pyrene	0.200	0.291	146	1	48	53-150
Dibenzo (a, h) anthracene	0.200	0.286	143	1	52	38-160
Benzo (g, h, i) perylene	0.200	0.294	147	1	46	63-152

# Column to be used to flag recovery and RPD values with an asterisk  
\* Values outside of QC limits

RPD: 0 out of 18 outside limits

Spike Recovery: 0 out of 36 outside limits

COMMENTS:

---

FORM 3  
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EN CHEM

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 120501.B

Matrix Spike - Sample No.: 81589-003

8 NS 12/5/pi

*Batch QC*

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	0.200	0.000	0.202	101	33-134
2-Methylnaphthalene	0.200	0.000	0.190	95	30-149
1-Methylnaphthalene	0.200	0.000	0.201	100	35-137
Acenaphthylene	0.200	0.000	0.214	107	36-153
Acenaphthene	0.200	0.000	0.203	102	42-137
Fluorene	0.200	0.000	0.205	102	46-140
Phenanthrene	0.200	0.000	0.204	102	44-150
Anthracene	0.200	0.000	0.231	116	49-144
Fluoranthene	0.200	0.000	0.248	124	40-179
Pyrene	0.200	0.000	0.241	120	56-175
Benzo(a)anthracene	0.200	0.000	0.246	123	66-178
Chrysene	0.200	0.000	0.236	118	61-157
Benzo(b)fluoranthene	0.200	0.000	0.248	124	74-163
Benzo(k)fluoranthene	0.200	0.000	0.246	123	58-166
Benzo(a)pyrene	0.200	0.000	0.294	147	93-162
Indeno(1,2,3-cd)pyrene	0.200	0.000	0.261	130	56-145
Dibenzo(a,h)anthracene	0.200	0.000	0.232	116	41-153
Benzo(g,h,i)perylene	0.200	0.000	0.252	126	55-151

# Column to be used to flag recovery and RPD values with an asterisk  
\* Values outside of QC limits

COMMENTS:

---

FORM 3  
 WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EN CHEM

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 120501.B

Matrix Spike - Sample No.: 815899-003

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Naphthalene	0.200	0.202	101	0	21	33-134
2-Methylnaphthalene	0.200	0.194	97	2	25	30-149
1-Methylnaphthalene	0.200	0.201	100	0	20	35-137
Acenaphthylene	0.200	0.216	108	1	14	36-153
Acenaphthene	0.200	0.204	102	0	20	42-137
Fluorene	0.200	0.210	105	3	12	46-140
Phenanthrene	0.200	0.204	102	0	20	44-150
Anthracene	0.200	0.228	114	2	19	49-144
Fluoranthene	0.200	0.250	125	1	12	40-179
Pyrene	0.200	0.244	122	2	14	56-175
Benzo (a) anthracene	0.200	0.248	124	1	14	66-178
Chrysene	0.200	0.237	118	0	13	61-157
Benzo (b) fluoranthene	0.200	0.249	124	0	15	74-163
Benzo (k) fluoranthene	0.200	0.239	120	2	17	58-166
Benzo (a) pyrene	0.200	0.290	145	1	13	93-162
Indeno (1,2,3-cd) pyrene	0.200	0.263	132	2	17	56-145
Dibenzo (a,h) anthracene	0.200	0.241	120	3	17	41-153
Benzo (g,h,i) perylene	0.200	0.252	126	0	14	55-151

# Column to be used to flag recovery and RPD values with an asterisk  
 \* Values outside of QC limits

RPD: 0 out of 18 outside limits  
 Spike Recovery: 0 out of 36 outside limits

COMMENTS: \_\_\_\_\_

FORM 1  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BLKA 998-30

Lab Name: \_\_\_\_\_ Contract: \_\_\_\_\_  
 Lab Code: \_\_\_\_\_ Case No.: \_\_\_\_\_ SAS No.: \_\_\_\_\_ SDG No.: GRO3-120501  
 Matrix: (soil/water) SOIL Lab Sample ID: BLKA 998-30  
 Sample wt/vol: \_\_\_\_\_ (g/mL) G Lab File ID: 031F0301  
 Level: (low/med) MED Date Received: \_\_\_\_\_  
 % Moisture: not dec. \_\_\_\_\_ Date Analyzed: 12/06/01  
 GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 50.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
1634-04-4	Methyl tert-butyl ether	25.000	U	
71-43-2	Benzene	25.000	U	
108-88-3	Toluene	25.000	U	
100-41-4	Ethylbenzene	25.000	U	
108-38-3	m/p-Xylene	25.000	U	
95-47-6	o-Xylene	25.000	U	
108-67-8	1,3,5-Trimethylbenzene	25.000	U	
95-63-6	1,2,4-Trimethylbenzene	25.000	U	
91-20-3	Naphthalene	25.000	U	

Date : 07-DEC-2001 08:02

Client ID: 815977-002

Sample Info: 15977B002WAV50

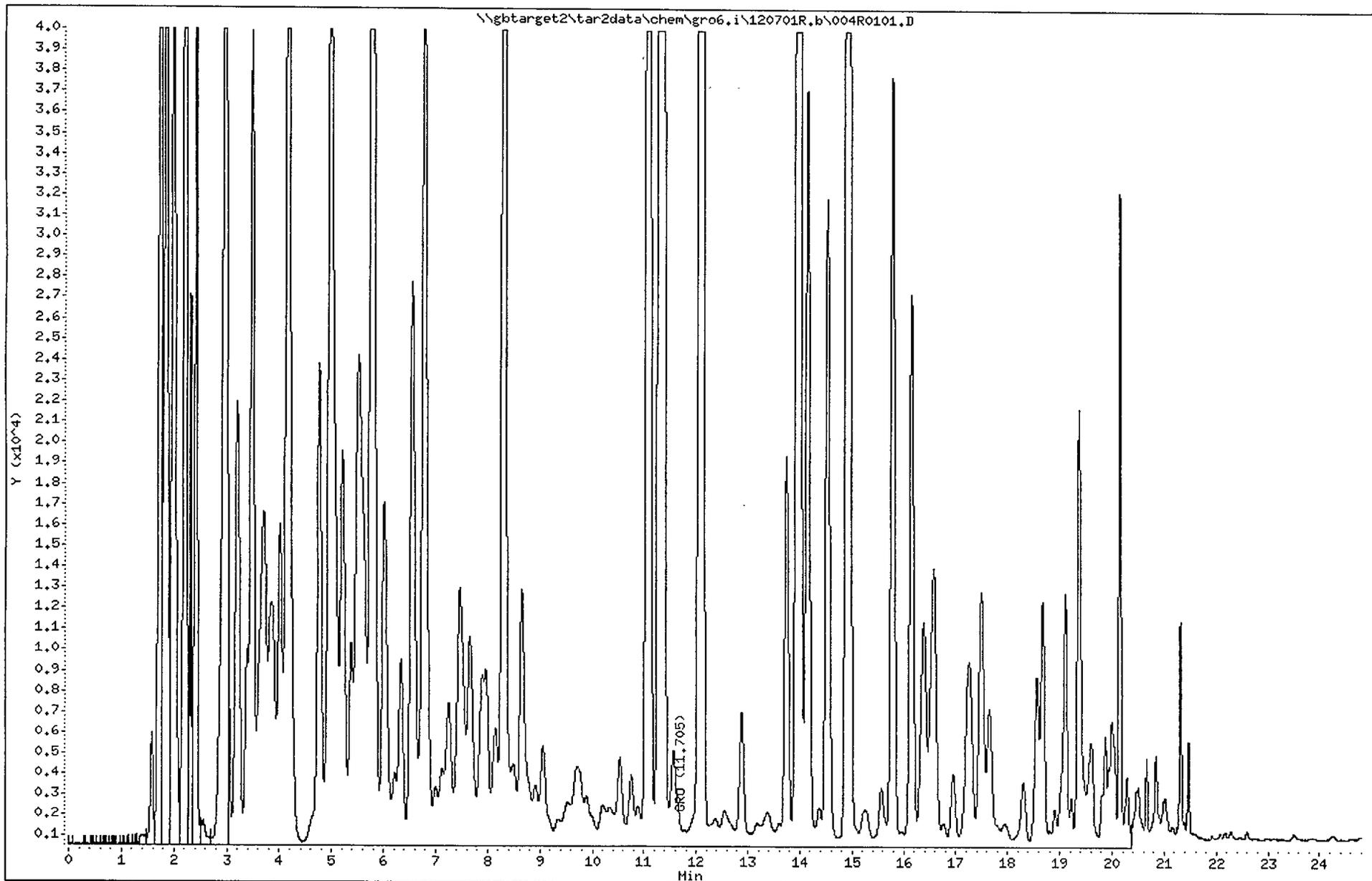
Purge Volume: 5.0

Column phase: DB-624

Instrument: gro6.i

Operator: SHT

Column diameter: 0.53



Date : 05-DEC-2001 12:45

Client ID: 815977-004

Sample Info: 15977B004WAC50

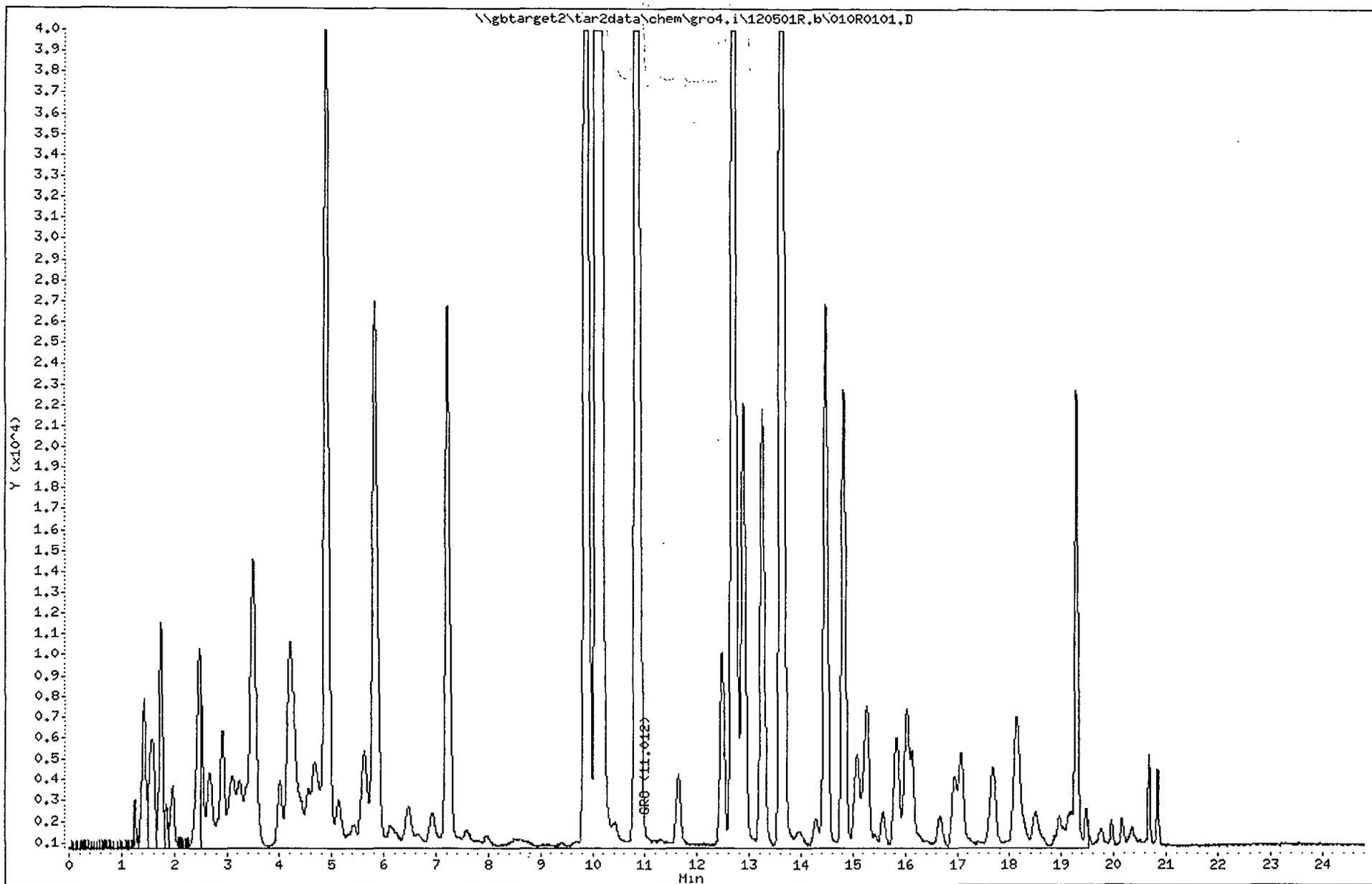
Purge Volume: 5.0

Column phase: DB-624

Instrument: gro4.i

Operator: MSB

Column diameter: 0.53



Date : 05-DEC-2001 13:18

Client ID: 815977-007

Sample Info: 15977B007WAC20

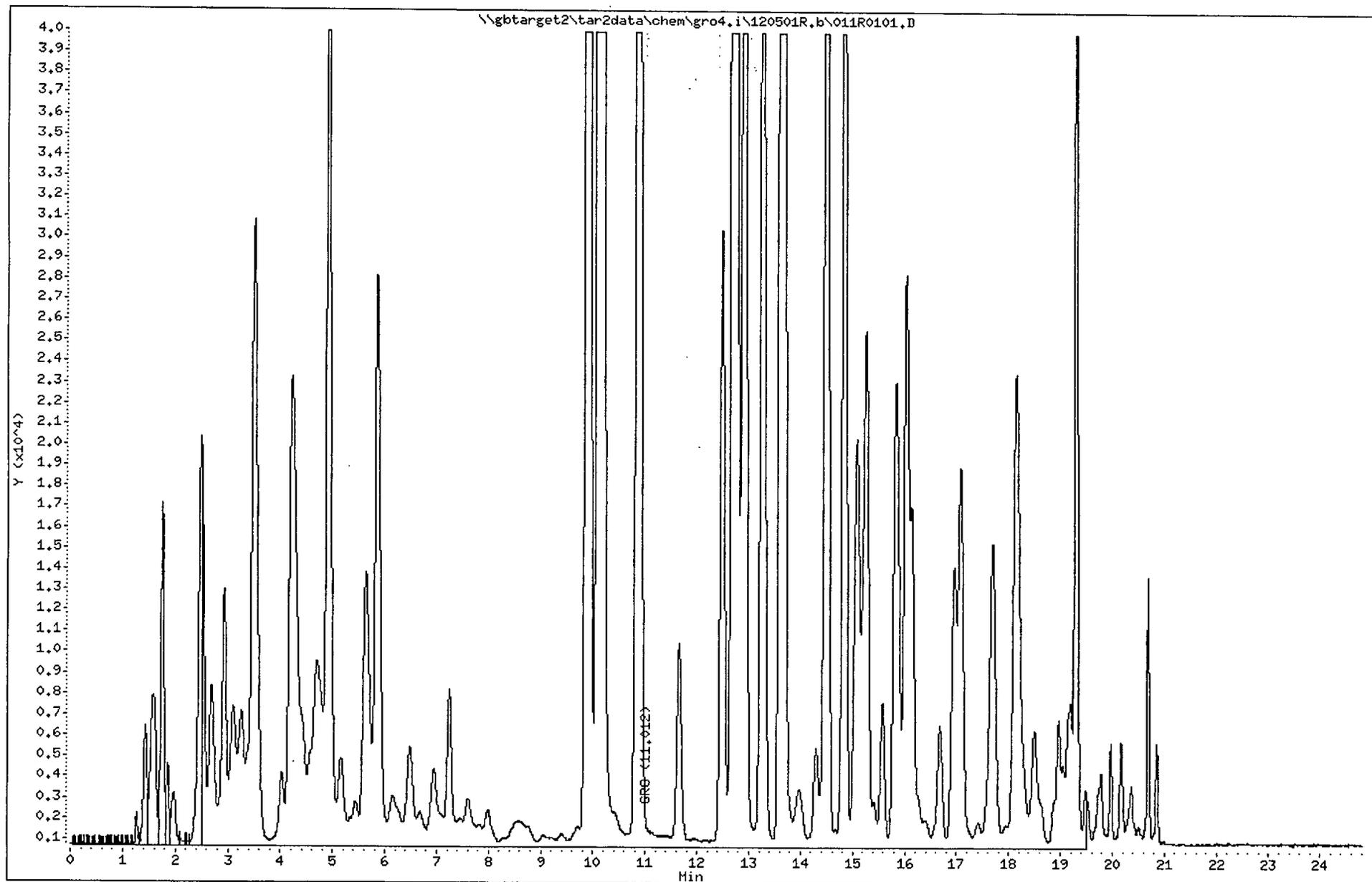
Purge Volume: 5.0

Column phase: DB-624

Instrument: gro4.i

Operator: MSB

Column diameter: 0.53



Date : 05-DEC-2001 13:50

Client ID: 815977-009

Sample Info: 15977B009WAC20

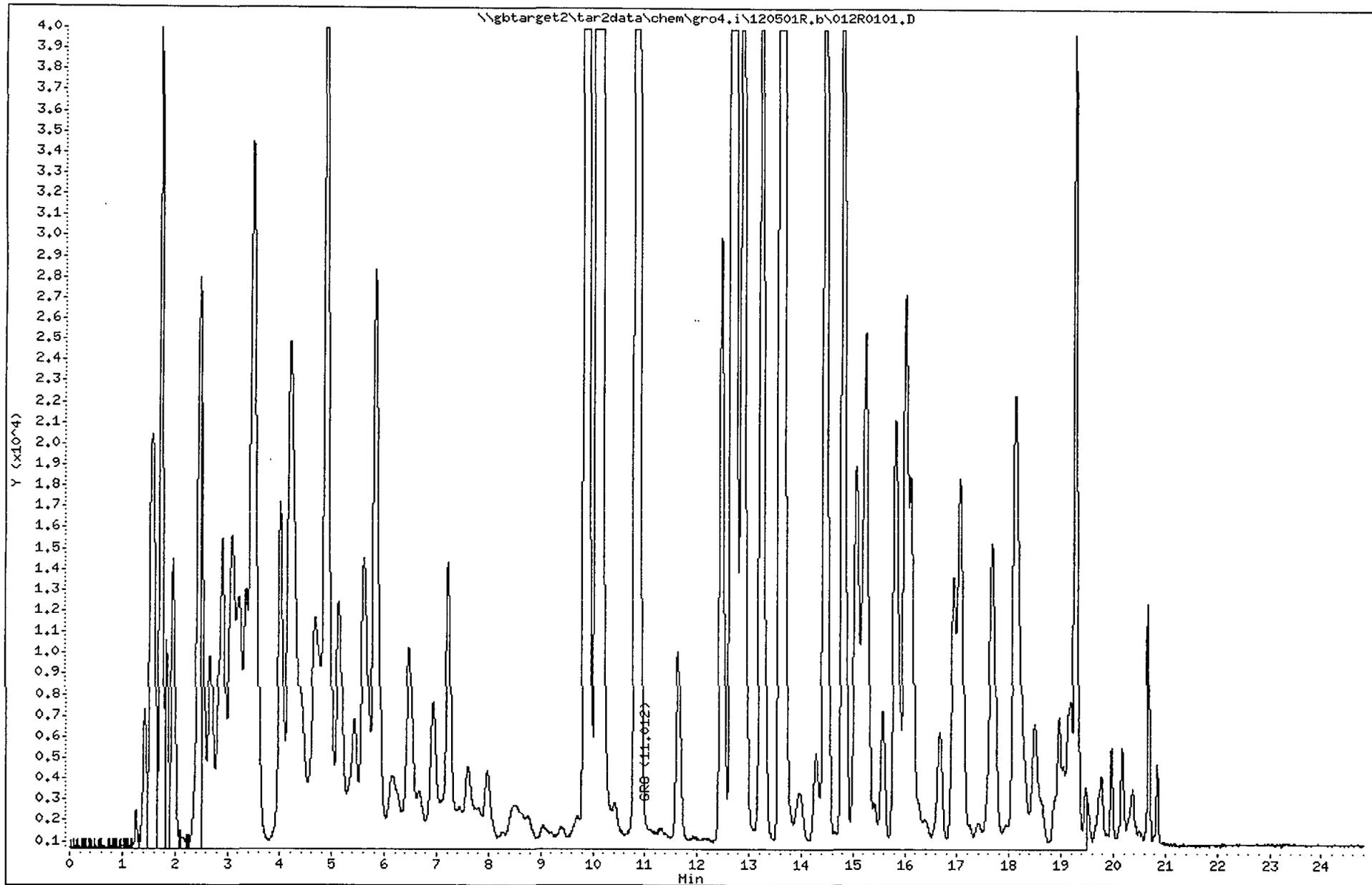
Purge Volume: 5.0

Column phase: DB-624

Instrument: gro4.i

Operator: MSB

Column diameter: 0.53



Date : 05-DEC-2001 14:55

Client ID: 815977-010

Sample Info: 15977B010WAC1

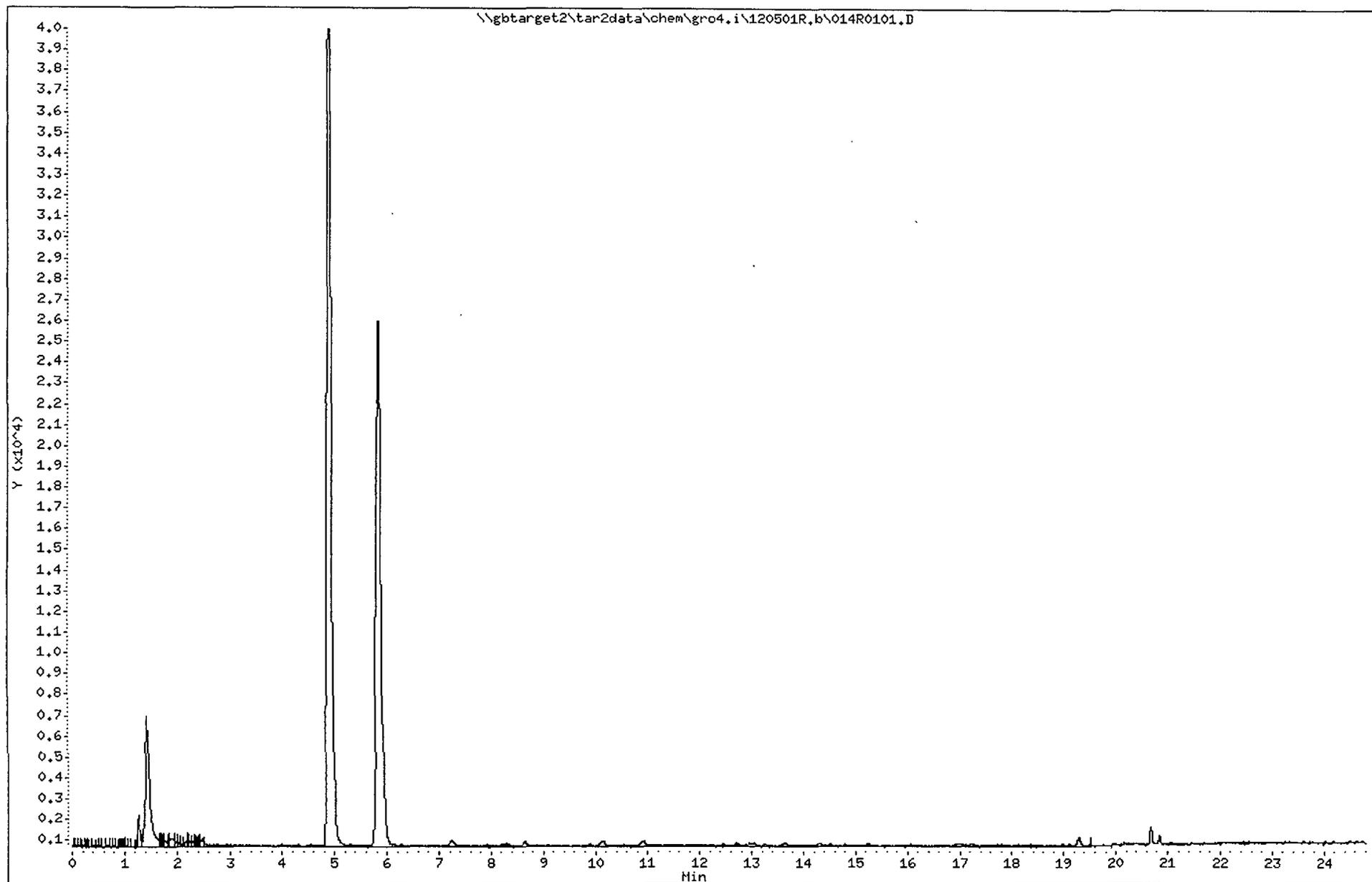
Purge Volume: 5.0

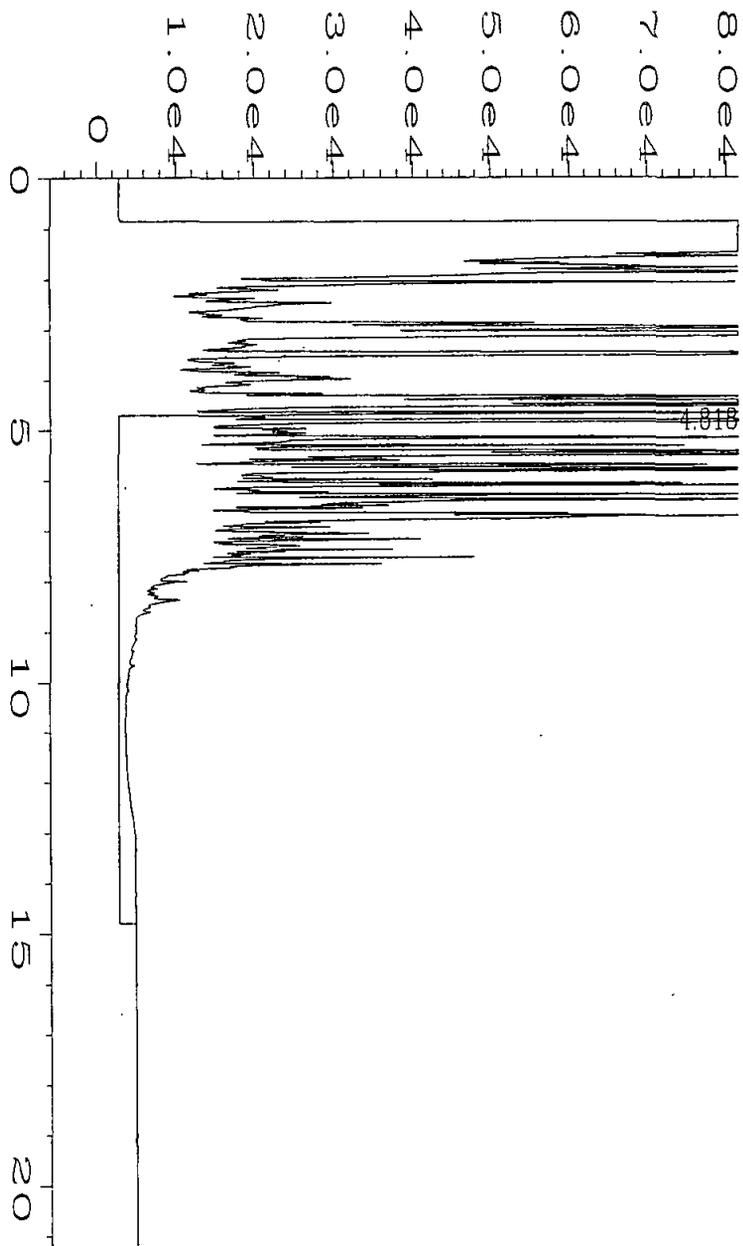
Column phase: DB-624

Instrument: gro4.i

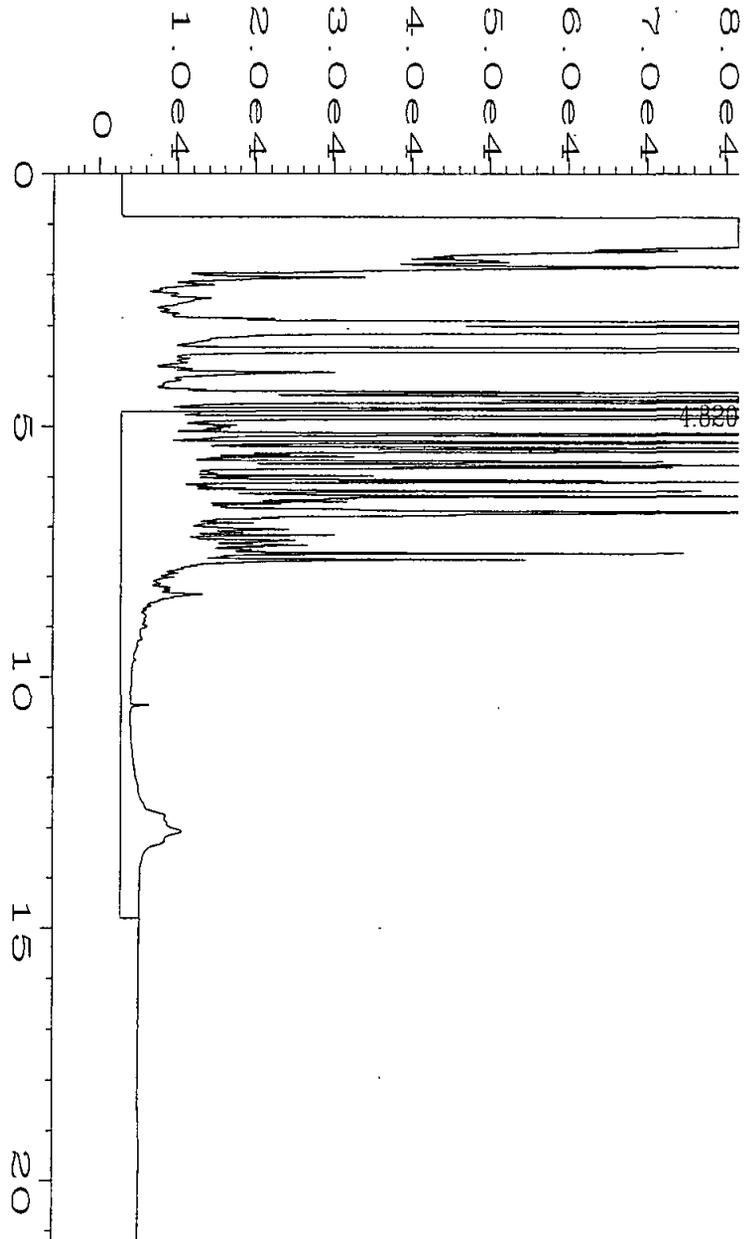
Operator: MSB

Column diameter: 0.53



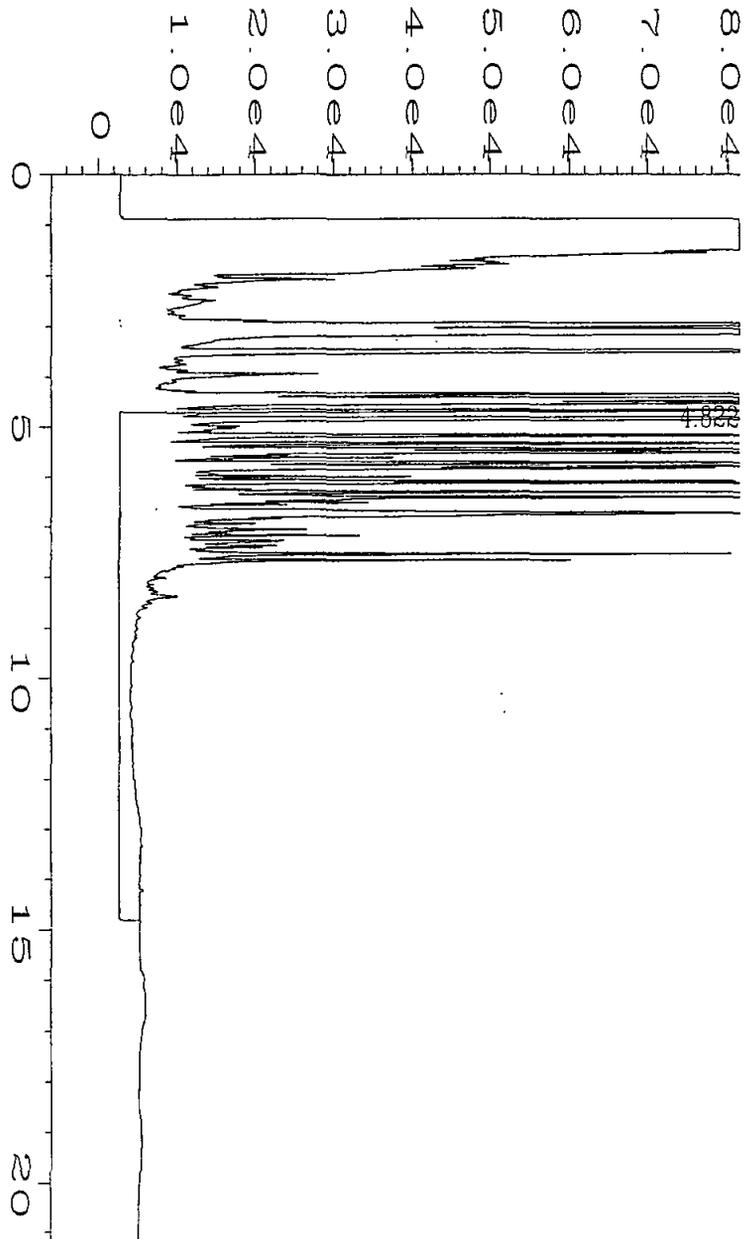


Data File Name	: G:\HPCHEM\11\DATA\120401\025R0501.D	Page Number	: 1
Operator	: DJB	Vial Number	: 25
Instrument	: DRO4	Injection Number	: 1
Sample Name	: 15977D002WJX20	Sequence Line	: 5
Run Time Bar Code:		Instrument Method:	4QUICK.MTH
Acquired on	: 04 Dec 01 10:10 PM	Analysis Method	: 4QUICK.MTH
Report Created on:	04 Dec 01 10:36 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 93 01:52 PM	ISTD Amount	:
Multiplier	: 1		



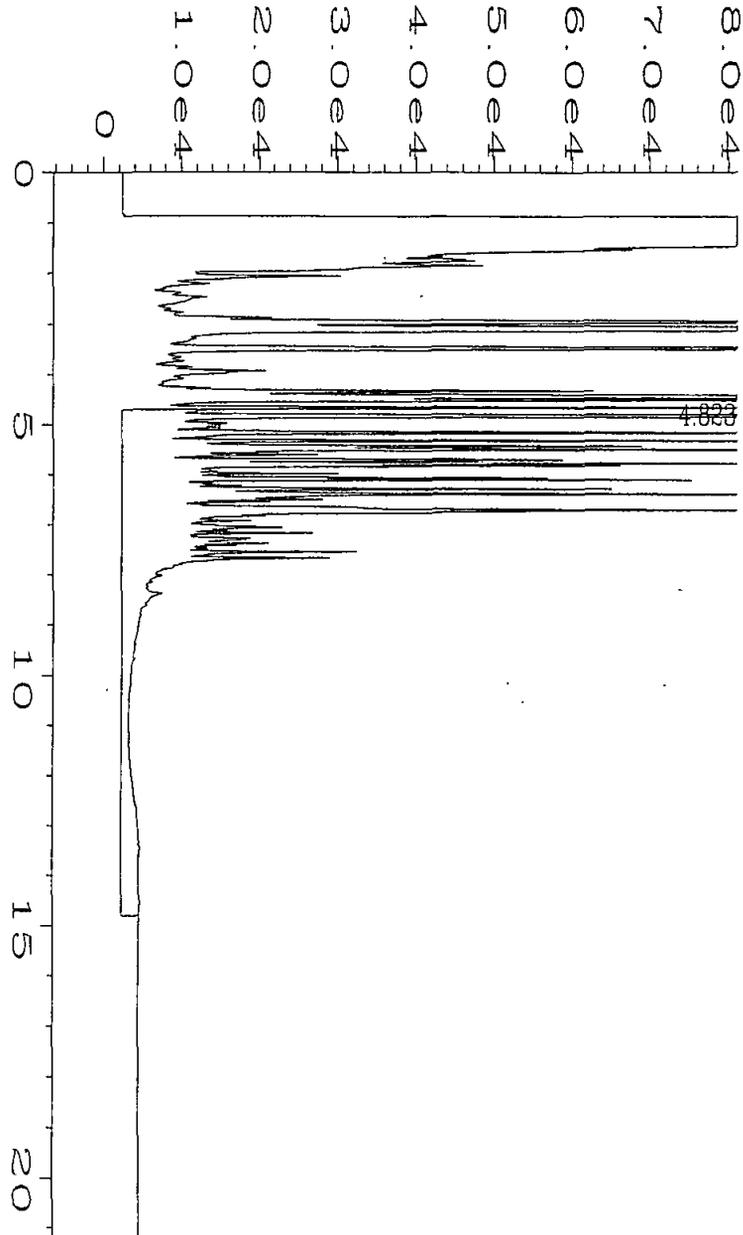
user modified

Data File Name	: G:\HPCHEM\11\DATA\120401\024R0501.D	Page Number	: 1
Operator	: DJB	Vial Number	: 24
Instrument	: DRO4	Injection Number	: 1
Sample Name	: 15977D004WJX4	Sequence Line	: 5
Run Time Bar Code:		Instrument Method:	4QUICK.MTH
Acquired on	: 04 Dec 01 09:43 PM	Analysis Method	: 4QUICK.MTH
Report Created on:	04 Dec 01 10:09 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 93 01:52 PM	ISTD Amount	:
Multiplier	: 1		



user modified

Data File Name	: G:\HPCHEM\11\DATA\120401\023R0301.D	Page Number	: 1
Operator	: DJB	Vial Number	: 23
Instrument	: DRO4	Injection Number	: 1
Sample Name	: 15977D007WJX2.5	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	4QUICK.MTH
Acquired on	: 04 Dec 01 08:24 PM	Analysis Method	: 4QUICK.MTH
Report Created on:	04 Dec 01 08:50 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 93 01:52 PM	ISTD Amount	:
Multiplier	: 1		



Data File Name	: G:\HPCHEM\11\DATA\120501\003R0101.D	Page Number	: 1
Operator	: DJB	Vial Number	: 3
Instrument	: DRO4	Injection Number	: 1
Sample Name	: 15977D009WJR6	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	4QUICK.MTH
Acquired on	: 05 Dec 01 08:40 AM	Analysis Method	: 4QUICK.MTH
Report Created on:	05 Dec 01 09:06 AM	Sample Amount	: 0
Last Recalib on	: 20 JUN 93 01:52 PM	ISTD Amount	:
Multiplier	: 1		



1795 Industrial Drive  
Green Bay, WI 54302  
920-469-2436  
800-7-ENCHEM  
FAX: 920-469-8827

## - Analytical Report -

Project Name :

Project Number : 41017023

Client: TERRACON ENVIRONMENTAL

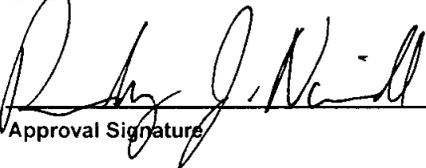
MDH LAB ID : 055-999-334

Sample No.	Field ID	Collection Date	Sample No.	Field ID	Collection Date
812598-001	P-1 30-32	6/11/2001			
812598-002	PW-1	6/11/2001			
812598-003	P-2 30-32	6/11/2001			
812598-004	PW-2	6/11/2001			
812598-005	P-3 30-32	6/12/2001			
812598-006	PW-3	6/12/2001			
812598-007	PW-4	6/12/2001			
812598-008	PW-5	6/12/2001			
812598-009	PW-6	6/12/2001			
812598-010	TRIP BLANK	6/12/2001			
812598-011	MEOH BLANK	6/12/2001			

Please visit our Internet homepage at: [www.enchem.com](http://www.enchem.com)

Soil VOC detects are corrected for the total solids, unless otherwise noted.

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. Reported results shall not be reproduced, except in full, without the written approval of the lab. The sample results relate only to the analytes of interest tested.

  
Approval Signature

  
Date

EN CHEM - GREEN BAY COOLER RECEIPT LOG

Batch No. 812598 Project Name or ID 41017023

No. of Coolers: 3

Temps: 12.5, 1.5, 1 °C WI only (circle): ROI

A. Receipt Phase: Date cooler was opened: 6/14/01 By: L. Wanner

Initials/Date  
LI 6/14/01

- 1: Were temperature blanks present? ..(record temperatures above) .....  YES NO
- 2: Were custody seals present? (Also record on COC)..... YES  NO
- 3: Are COC documents present?.....  YES NO<sup>2</sup>
- 4: Were all sample containers for tests requested on the COC received? .....  YES NO<sup>2</sup>
- 5: Do sample labels match the COC? .....  YES NO<sup>2</sup>
- 6: Are there any short holdtime tests?.....  YES<sup>1</sup> NO
- 7: Are sample volumes adequate for tests requested? .....  YES NO<sup>2</sup>
- 8: Are VOC samples free of bubbles >6mm ..... YES NO<sup>2</sup>  NA
- 9: Are dissolved parameters field filtered?..... YES NO<sup>2</sup>  NA
- 10: Check sample pH of preserved samples. (nqt VOCs) Completed..... YES NO  NA
- 11: Are samples preserved properly?.....  YES NO<sup>2</sup>
- 12: Started nonconformance/phone log record if applicable. Completed.....  YES NO NA
- 13: Enter samples into Project Logbook. Completed.....  YES NO
- 14: Place laboratory sample number on all containers Completed  YES NO
- 15: Check laboratory sample number on all containers and COC Completed  YES NO

B. Log-in Phase: Date samples were logged-in: 6-14-01 By: [Signature]

- 1: Were samples received on ice? (Must be ≤ 4 C).....  YES NO<sup>2</sup>
- 2: Is the COC signed as received by En Chem?.....  YES NO
- 3: Is this Project a Quick Turn Project?..... YES  NO
- 4: Is there any sub-work?..... YES  NO
- 5: Are any samples nearing expiration of hold-time? (Within 2 days)..... YES<sup>1</sup>  NO Contacted
- 6: Initiate Subcontracting procedure, SOP 1-REC-4, if applicable. Completed..... YES NO  NA

Short Hold-time tests:

48 Hours or less	7 days	Footnotes
Coliform (6 hrs)	Flashpoint	1 Notify proper lab group immediately. 2 Complete phone log.
Hexavalent Chromium (24 Hrs)	TSS	
BOD	Total Solids	
Nitrite	TDS	
Ortho Phosphorus	Sulfide	
Turbidity	Free Liquids	
Surfactants	Total Volatile Solids	
Sulfite	Aqueous Extractable Organics- ALL	
En Core Preservation	Unpreserved VOC's	
Color	Ash	

Rev. 12/15/99, Attachment to 1-REC-5.

\*Subject to QA Audit.

I have reviewed Log-in sheets, resolved all nonconformance issues, corrected and properly documented these actions

Project Mgmt reviewed by/date SBG 6/14/01

# En Chem Inc.

1795 Industrial Drive  
Green Bay, WI 54302  
920-469-2436  
800-7-ENCHEM  
Fax: 920-469-8827

---

Lab#:	TestGroupID:	Comment:
812598-002 PW-1	GRO-W	Early and late eluting peaks were present outside the window of analysis.
	DRO-W	Early eluting peaks were present outside the window of analysis.
812598-004 PW-2	GRO-W	Late eluting peaks were present outside the window of analysis.
	DRO-W	Early eluting peaks were present outside the window of analysis.
812598-006 PW-3	GRO-W	Early and late eluting peaks were present outside the window of analysis.
	DRO-W	Early eluting peaks were present outside the window of analysis.
812598-007 PW-4	DRO-W	Hump was present late in chromatogram.
812598-008 PW-5	DRO-W	Hump was present late in chromatogram.
812598-009 PW-6	GRO-W	Late eluting peaks were present outside the window of analysis.
	DRO-W	Early eluting peaks were present outside the window of analysis.

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : P-1 30-32

Lab Sample Number : 812598-001

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/19/01

Collection Date : 6/11/01

Matrix Type : SOIL

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Solids, percent	93.2		%		6/15/01	SM2540G	SM2540G

Organic Results

BTEX + MTBE - SOIL/METHANOL

Prep Method: 5030B/5035 Prep Date: 6/15/01 Analyst: PMS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
a,a,a-Trifluorotoluene	112	---	%Recov		6/16/01	MOD 8021B
Benzene	< 25	25	ug/kg		6/16/01	MOD 8021B
Ethylbenzene	< 25	25	ug/kg		6/16/01	MOD 8021B
Methyl-tert-butyl-ether	< 25	25	ug/kg		6/16/01	MOD 8021B
Toluene	< 25	25	ug/kg		6/16/01	MOD 8021B
Xylenes, -m, -p	< 25	25	ug/kg		6/16/01	MOD 8021B
Xylene, -o	< 25	25	ug/kg		6/16/01	MOD 8021B

Organic Results

BTEX BLANK

Prep Method: Prep Date: 6/15/01 Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
BTEX - Blank	941-12					

Organic Results

Preservation Date: 6/14/01

DIESEL RANGE ORGANICS - SOIL

Prep Method: Wi MOD DRO Prep Date: 6/15/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	< 3.6	3.6	mg/kg		6/15/01	Wi MOD DRO
Blank spike	85	---	%Recov		6/15/01	Wi MOD DRO
Blank spike duplicate	83	---	%Recov		6/15/01	Wi MOD DRO
Blank	< 5.0	5.0	mg/kg		6/15/01	Wi MOD DRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : P-1 30-32

Lab Sample Number : 812598-001

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/19/01

Collection Date : 6/11/01

Matrix Type : SOIL

Organic Results

GASOLINE RANGE ORGANICS - SOIL/METHANOL Prep Method: Wi MOD GRO Prep Date: 6/15/01 Analyst: PMS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Gasoline Range Organics	< 2.7	2.7	mg/kg		6/16/01	Wi MOD GRO
Blank Spike	100	---	%Recov		6/16/01	Wi MOD GRO
Blank Spike Duplicate	96	---	%Recov		6/16/01	Wi MOD GRO
Blank	< 2.5	2.5	mg/kg		6/16/01	Wi MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-1

Lab Sample Number : 812598-002

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/11/01

Matrix Type : WATER

Organic Results

DIESEL RANGE ORGANICS - WATER

Prep Method: Wi MOD DRO Prep Date: 6/15/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	6700	210	ug/l		6/15/01	Wi MOD DRO
Blank spike	76	---	%Recov		6/15/01	Wi MOD DRO
Blank spike duplicate	86	---	%Recov		6/15/01	Wi MOD DRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD DRO

Organic Results

GASOLINE RANGE ORGANICS - WATER

Prep Method: Wi MOD GRO Prep Date: 6/14/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	15000	500	ug/l		6/15/01	Wi MOD GRO
Blank Spike	97	---	%Recov		6/15/01	Wi MOD GRO
Blank Spike Duplicate	96	---	%Recov		6/15/01	Wi MOD GRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD GRO

Organic Results

MDH 465 VOLATILES - WATER

Prep Method: SW846 5030B Prep Date: 6/15/01 Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 100	100	ug/L		6/15/01	SW846 8260B
Allyl Chloride	< 100	100	ug/L		6/15/01	SW846 8260B
Benzene	< 20	20	ug/L		6/15/01	SW846 8260B
Bromochloromethane	< 20	20	ug/L		6/15/01	SW846 8260B
Bromodichloromethane	< 20	20	ug/L		6/15/01	SW846 8260B
Bromoform	< 20	20	ug/L		6/15/01	SW846 8260B
Bromobenzene	< 20	20	ug/L		6/15/01	SW846 8260B
Bromomethane	< 20	20	ug/L		6/15/01	SW846 8260B
2-Butanone	< 100	100	ug/L		6/15/01	SW846 8260B

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-1

Lab Sample Number : 812598-002

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/11/01

Matrix Type : WATER

s-Butylbenzene	< 20	20	ug/L	6/15/01	SW846 8260B
t-Butylbenzene	< 20	20	ug/L	6/15/01	SW846 8260B
n-Butylbenzene	72	20	ug/L	6/15/01	SW846 8260B
Carbon tetrachloride	< 20	20	ug/L	6/15/01	SW846 8260B
Chloroform	< 20	20	ug/L	6/15/01	SW846 8260B
Chlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
Chlorodibromomethane	< 100	100	ug/L	6/15/01	SW846 8260B
Chloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
Chloromethane	< 20	20	ug/L	6/15/01	SW846 8260B
2-Chlorotoluene	< 20	20	ug/L	6/15/01	SW846 8260B
4-Chlorotoluene	< 20	20	ug/L	6/15/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 20	20	ug/L	6/15/01	SW846 8260B
1,2-Dibromoethane	< 20	20	ug/L	6/15/01	SW846 8260B
Dibromomethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,3-Dichlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
1,4-Dichlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
1,2-Dichloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,2-Dichlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
1,1-Dichloroethene	< 20	20	ug/L	6/15/01	SW846 8260B
cis-1,2-Dichloroethene	< 20	20	ug/L	6/15/01	SW846 8260B
Dichlorodifluoromethane	< 20	20	ug/L	6/15/01	SW846 8260B
trans-1,2-Dichloroethene	< 20	20	ug/L	6/15/01	SW846 8260B
Dichlorofluoromethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,2-Dichloropropane	< 20	20	ug/L	6/15/01	SW846 8260B
1,1-Dichloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,3-Dichloropropane	< 100	100	ug/L	6/15/01	SW846 8260B
2,2-Dichloropropane	< 20	20	ug/L	6/15/01	SW846 8260B
1,1-Dichloropropene	< 20	20	ug/L	6/15/01	SW846 8260B
cis-1,3-Dichloropropene	< 20	20	ug/L	6/15/01	SW846 8260B
trans-1,3-Dichloropropene	< 20	20	ug/L	6/15/01	SW846 8260B
Ethylbenzene	390	20	ug/L	6/15/01	SW846 8260B
Diethyl ether	< 20	20	ug/L	6/15/01	SW846 8260B
Fluorotrichloromethane	< 20	20	ug/L	6/15/01	SW846 8260B
Hexachlorobutadiene	< 20	20	ug/L	6/15/01	SW846 8260B

**- Analytical Report -**

Project Name :

Project Number : 41017023

Field ID : PW-1

Lab Sample Number : 812598-002

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/11/01

Matrix Type : WATER

Isopropylbenzene	49	20	ug/L	6/15/01	SW846 8260B
p-Isopropyltoluene	33	20	ug/L	6/15/01	SW846 8260B
Methylene chloride	< 20	20	ug/L	6/15/01	SW846 8260B
4-Methyl-2-pentanone	< 100	100	ug/L	6/15/01	SW846 8260B
Methyl-tert-butyl-ether	< 20	20	ug/L	6/15/01	SW846 8260B
Naphthalene	210	20	ug/L	6/15/01	SW846 8260B
n-Propylbenzene	160	20	ug/L	6/15/01	SW846 8260B
Styrene	< 20	20	ug/L	6/15/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,1,1,2-Tetrachloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
Tetrachloroethene	< 20	20	ug/L	6/15/01	SW846 8260B
Toluene	21	20	ug/L	6/15/01	SW846 8260B
1,2,3-Trichlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
1,2,4-Trichlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
1,1,1-Trichloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,1,2-Trichloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,2,4-Trimethylbenzene	1400	20	ug/L	6/15/01	SW846 8260B
Trichloroethene	< 20	20	ug/L	6/15/01	SW846 8260B
1,2,3-Trichloropropane	< 20	20	ug/L	6/15/01	SW846 8260B
Tetrahydrofuran	< 100	100	ug/L	6/15/01	SW846 8260B
1,3,5-Trimethylbenzene	390	20	ug/L	6/15/01	SW846 8260B
Vinyl chloride	< 20	20	ug/L	6/15/01	SW846 8260B
Xylenes, -m, -p	1600	40	ug/L	6/15/01	SW846 8260B
Xylene, -o	120	20	ug/L	6/15/01	SW846 8260B
4-Bromofluorobenzene	85	---	%Recov	6/15/01	SW846 8260B
Dibromofluoromethane	93	---	%Recov	6/15/01	SW846 8260B
Toluene-d8	94	---	%Recov	6/15/01	SW846 8260B

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-1

Lab Sample Number : 812598-002

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/11/01

Matrix Type : WATER

Organic Results

PAH - SEMIVOLATILES

Prep Method: SW846 3510

Prep Date: 6/15/01

Analyst: AVS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
2-Fluorobiphenyl	107	---	%Recov		6/15/01	SW846 8270
Terphenyl-d14	83	---	%Recov		6/15/01	SW846 8270
Nitrobenzene-d5	70	---	%Recov		6/15/01	SW846 8270
Acenaphthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Acenaphthylene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Anthracene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(a)anthracene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(a)pyrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(b)fluoranthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(g,h,i)perylene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(k)fluoranthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Indeno(1,2,3-cd)pyrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Chrysene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Dibenzo(a,h)anthracene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Fluoranthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Fluorene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
2-Methylnaphthalene	130	30	ug/L		6/15/01	SW846 8270
1-Methylnaphthalene	69	30	ug/L		6/15/01	SW846 8270
Naphthalene	180	30	ug/L		6/15/01	SW846 8270
Phenanthrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Pyrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270

Organic Results

PAH-BLANK

Prep Method: SW846 3510C

Prep Date: 6/15/01

Analyst: AVS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
PAH-Blank	922-13				6/15/01	SW846 8270C

**- Analytical Report -**

Project Name :

Project Number : 41017023

Field ID : PW-1

Lab Sample Number : 812598-002

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/11/01

Matrix Type : WATER

**Organic Results**

VOC-BLK-W

Prep Method:

Prep Date:

Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
VOC-BLK	923-93					

- Analytical Report -

Project Name :  
Project Number : 41017023  
Field ID : P-2 30-32  
Lab Sample Number : 812598-003  
MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL  
Report Date : 6/19/01  
Collection Date : 6/11/01  
Matrix Type : SOIL

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Solids, percent	85.1		%		6/15/01	SM2540G	SM2540G

Organic Results

BTEX + MTBE - SOIL/METHANOL

Prep Method: 5030B/5035 Prep Date: 6/15/01 Analyst: PMS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
a,a,a-Trifluorotoluene	108	---	%Recov		6/16/01	MOD 8021B
Benzene	< 25	25	ug/kg		6/16/01	MOD 8021B
Ethylbenzene	< 25	25	ug/kg		6/16/01	MOD 8021B
Methyl-tert-butyl-ether	< 25	25	ug/kg		6/16/01	MOD 8021B
Toluene	< 25	25	ug/kg		6/16/01	MOD 8021B
Xylenes, -m, -p	< 25	25	ug/kg		6/16/01	MOD 8021B
Xylene, -o	< 25	25	ug/kg		6/16/01	MOD 8021B

Organic Results

BTEX BLANK

Prep Method: Prep Date: 6/15/01 Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
BTEX - Blank	941-12					

Organic Results

Preservation Date: 6/14/01

DIESEL RANGE ORGANICS - SOIL

Prep Method: Wi MOD DRO Prep Date: 6/15/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	< 4.0	4.0	mg/kg		6/15/01	Wi MOD DRO
Blank spike	85	---	%Recov		6/15/01	Wi MOD DRO
Blank spike duplicate	83	---	%Recov		6/15/01	Wi MOD DRO
Blank	< 5.0	5.0	mg/kg		6/15/01	Wi MOD DRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : P-2 30-32

Lab Sample Number : 812598-003

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/19/01

Collection Date : 6/11/01

Matrix Type : SOIL

Organic Results

GASOLINE RANGE ORGANICS - SOIL/METHANOL    Prep Method: Wi MOD GRO    Prep Date: 6/15/01    Analyst: PMS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Gasoline Range Organics	< 2.9	2.9	mg/kg		6/16/01	Wi MOD GRO
Blank Spike	100	---	%Recov		6/16/01	Wi MOD GRO
Blank Spike Duplicate	96	---	%Recov		6/16/01	Wi MOD GRO
Blank	< 2.5	2.5	mg/kg		6/16/01	Wi MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

**- Analytical Report -**

Project Name :  
Project Number : 41017023  
Field ID : PW-2  
Lab Sample Number : 812598-004  
MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL  
Report Date : 6/20/01  
Collection Date : 6/11/01  
Matrix Type : WATER

**Organic Results**

**DIESEL RANGE ORGANICS - WATER**

Prep Method: Wi MOD DRO Prep Date: 6/15/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	540	100	ug/l		6/15/01	Wi MOD DRO
Blank spike	76	---	%Recov		6/15/01	Wi MOD DRO
Blank spike duplicate	86	---	%Recov		6/15/01	Wi MOD DRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD DRO

**Organic Results**

**GASOLINE RANGE ORGANICS - WATER**

Prep Method: Wi MOD GRO Prep Date: 6/14/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	700	50	ug/l		6/15/01	Wi MOD GRO
Blank Spike	97	---	%Recov		6/15/01	Wi MOD GRO
Blank Spike Duplicate	96	---	%Recov		6/15/01	Wi MOD GRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD GRO

**Organic Results**

**MDH 465 VOLATILES - WATER**

Prep Method: SW846 5030B Prep Date: 6/15/01 Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 5.0	5.0	ug/L		6/15/01	SW846 8260B
Allyl Chloride	< 5.0	5.0	ug/L		6/15/01	SW846 8260B
Benzene	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Bromochloromethane	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Bromobenzene	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Bromomethane	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		6/15/01	SW846 8260B

**- Analytical Report -**

Project Name :

Project Number : 41017023

Field ID : PW-2

Lab Sample Number : 812598-004

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/11/01

Matrix Type : WATER

s-Butylbenzene	2.0	1.0	ug/L	6/15/01	SW846 8260B
t-Butylbenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
n-Butylbenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Chloroform	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Chlorodibromomethane	< 5.0	5.0	ug/L	6/15/01	SW846 8260B
Chloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Chloromethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
2-Chlorotoluene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
4-Chlorotoluene,	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,3-Dichlorobenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,4-Dichlorobenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2-Dichlorobenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
cis-1,2-Dichloroethene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Dichlorodifluoromethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
trans-1,2-Dichloroethene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Dichlorofluoromethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,3-Dichloropropane	< 5.0	5.0	ug/L	6/15/01	SW846 8260B
2,2-Dichloropropane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1-Dichloropropene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Ethylbenzene	1.5	1.0	ug/L	6/15/01	SW846 8260B
Diethyl ether	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Fluorotrichloromethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Hexachlorobutadiene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B

**- Analytical Report -**

Project Name :

Project Number : 41017023

Field ID : PW-2

Lab Sample Number : 812598-004

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/11/01

Matrix Type : WATER

Isopropylbenzene	1.6	1.0	ug/L	6/15/01	SW846 8260B
p-Isopropyltoluene	1.7	1.0	ug/L	6/15/01	SW846 8260B
Methylene chloride	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L	6/15/01	SW846 8260B
Methyl-tert-butyl-ether	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Naphthalene	3.0	1.0	ug/L	6/15/01	SW846 8260B
n-Propylbenzene	2.2	1.0	ug/L	6/15/01	SW846 8260B
Styrene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Tetrachloroethene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Toluene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2,3-Trichlorobenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2,4-Trichlorobenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2,4-Trimethylbenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Trichloroethene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Tetrahydrofuran	< 5.0	5.0	ug/L	6/15/01	SW846 8260B
1,3,5-Trimethylbenzene	20	1.0	ug/L	6/15/01	SW846 8260B
Vinyl chloride	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Xylenes, -m, -p	< 2.0	2.0	ug/L	6/15/01	SW846 8260B
Xylene, -o	2.0	1.0	ug/L	6/15/01	SW846 8260B
4-Bromofluorobenzene	86	---	%Recov	6/15/01	SW846 8260B
Dibromofluoromethane	95	---	%Recov	6/15/01	SW846 8260B
Toluene-d8	95	---	%Recov	6/15/01	SW846 8260B

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-2

Lab Sample Number : 812598-004

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/11/01

Matrix Type : WATER

Organic Results

PAH - SEMIVOLATILES

Prep Method: SW846 3510 Prep Date: 6/15/01 Analyst: AVS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
2-Fluorobiphenyl	53	---	%Recov		6/15/01	SW846 8270
Terphenyl-d14	77	---	%Recov		6/15/01	SW846 8270
Nitrobenzene-d5	76	---	%Recov		6/15/01	SW846 8270
Acenaphthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Acenaphthylene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Anthracene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(a)anthracene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(a)pyrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(b)fluoranthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(g,h,i)perylene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(k)fluoranthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Indeno(1,2,3-cd)pyrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Chrysene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Dibenzo(a,h)anthracene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Fluoranthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Fluorene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
2-Methylnaphthalene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
1-Methylnaphthalene	2.4	1.0	ug/L		6/15/01	SW846 8270
Naphthalene	11	1.0	ug/L		6/15/01	SW846 8270
Phenanthrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Pyrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270

Organic Results

PAH-BLANK

Prep Method: SW846 3510C Prep Date: 6/15/01 Analyst: AVS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
PAH-Blank	922-13				6/15/01	SW846 8270C

---

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-2

Lab Sample Number : 812598-004

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/11/01

Matrix Type : WATER

---

Organic Results

VOC-BLK-W

Prep Method:

Prep Date:

Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
VOC-BLK	923-96					

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : P-3 30-32

Lab Sample Number : 812598-005

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/19/01

Collection Date : 6/12/01

Matrix Type : SOIL

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Solids, percent	87.6		%		6/15/01	SM2540G	SM2540G

Organic Results

BTEX + MTBE - SOIL/METHANOL

Prep Method: 5030B/5035 Prep Date: 6/15/01 Analyst: PMS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
a,a,a-Trifluorotoluene	103	---	%Recov		6/16/01	MOD 8021B
Benzene	< 25	25	ug/kg		6/16/01	MOD 8021B
Ethylbenzene	< 25	25	ug/kg		6/16/01	MOD 8021B
Methyl-tert-butyl-ether	< 25	25	ug/kg		6/16/01	MOD 8021B
Toluene	< 25	25	ug/kg		6/16/01	MOD 8021B
Xylenes, -m, -p	< 25	25	ug/kg		6/16/01	MOD 8021B
Xylene, -o	< 25	25	ug/kg		6/16/01	MOD 8021B

Organic Results

BTEX BLANK

Prep Method: Prep Date: 6/15/01 Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
BTEX - Blank	941-12					

Organic Results

Preservation Date: 6/14/01

DIESEL RANGE ORGANICS - SOIL

Prep Method: Wi MOD DRO Prep Date: 6/15/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	< 3.3	3.3	mg/kg		6/15/01	Wi MOD DRO
Blank spike	85	---	%Recov		6/15/01	Wi MOD DRO
Blank spike duplicate	83	---	%Recov		6/15/01	Wi MOD DRO
Blank	< 5.0	5.0	mg/kg		6/15/01	Wi MOD DRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : P-3 30-32

Lab Sample Number : 812598-005

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/19/01

Collection Date : 6/12/01

Matrix Type : SOIL

Organic Results

GASOLINE RANGE ORGANICS - SOIL/METHANOL    Prep Method: Wi MOD GRO    Prep Date: 6/15/01    Analyst: PMS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Gasoline Range Organics	< 2.9	2.9	mg/kg		6/16/01	Wi MOD GRO
Blank Spike	100	---	%Recov		6/16/01	Wi MOD GRO
Blank Spike Duplicate	96	---	%Recov		6/16/01	Wi MOD GRO
Blank	< 2.5	2.5	mg/kg		6/16/01	Wi MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-3

Lab Sample Number : 812598-006

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

Organic Results

DIESEL RANGE ORGANICS - WATER

Prep Method: Wi MOD DRO Prep Date: 6/15/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	3700	100	ug/l		6/15/01	Wi MOD DRO
Blank spike	76	---	%Recov		6/15/01	Wi MOD DRO
Blank spike duplicate	86	---	%Recov		6/15/01	Wi MOD DRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD DRO

Organic Results

GASOLINE RANGE ORGANICS - WATER

Prep Method: Wi MOD GRO Prep Date: 6/14/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	14000	1000	ug/l		6/15/01	Wi MOD GRO
Blank Spike	97	---	%Recov		6/15/01	Wi MOD GRO
Blank Spike Duplicate	96	---	%Recov		6/15/01	Wi MOD GRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD GRO

Organic Results

MDH 465 VOLATILES - WATER

Prep Method: SW846 5030B Prep Date: 6/15/01 Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 100	100	ug/L		6/15/01	SW846 8260B
Allyl Chloride	< 100	100	ug/L		6/15/01	SW846 8260B
Benzene	50	20	ug/L		6/15/01	SW846 8260B
Bromochloromethane	< 20	20	ug/L		6/15/01	SW846 8260B
Bromodichloromethane	< 20	20	ug/L		6/15/01	SW846 8260B
Bromoform	< 20	20	ug/L		6/15/01	SW846 8260B
Bromobenzene	< 20	20	ug/L		6/15/01	SW846 8260B
Bromomethane	< 20	20	ug/L		6/15/01	SW846 8260B
2-Butanone	< 100	100	ug/L		6/15/01	SW846 8260B

**- Analytical Report -**

Project Name :

Project Number : 41017023

Field ID : PW-3

Lab Sample Number : 812598-006

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

s-Butylbenzene	< 20	20	ug/L	6/15/01	SW846 8260B
t-Butylbenzene	< 20	20	ug/L	6/15/01	SW846 8260B
n-Butylbenzene	< 20	20	ug/L	6/15/01	SW846 8260B
Carbon tetrachloride	< 20	20	ug/L	6/15/01	SW846 8260B
Chloroform	< 20	20	ug/L	6/15/01	SW846 8260B
Chlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
Chlorodibromomethane	< 100	100	ug/L	6/15/01	SW846 8260B
Chloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
Chloromethane	< 20	20	ug/L	6/15/01	SW846 8260B
2-Chlorotoluene	< 20	20	ug/L	6/15/01	SW846 8260B
4-Chlorotoluene	< 20	20	ug/L	6/15/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 20	20	ug/L	6/15/01	SW846 8260B
1,2-Dibromoethane	< 20	20	ug/L	6/15/01	SW846 8260B
Dibromomethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,3-Dichlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
1,4-Dichlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
1,2-Dichloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,2-Dichlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
1,1-Dichloroethene	< 20	20	ug/L	6/15/01	SW846 8260B
cis-1,2-Dichloroethene	< 20	20	ug/L	6/15/01	SW846 8260B
Dichlorodifluoromethane	< 20	20	ug/L	6/15/01	SW846 8260B
trans-1,2-Dichloroethene	< 20	20	ug/L	6/15/01	SW846 8260B
Dichlorofluoromethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,2-Dichloropropane	< 20	20	ug/L	6/15/01	SW846 8260B
1,1-Dichloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,3-Dichloropropane	< 100	100	ug/L	6/15/01	SW846 8260B
2,2-Dichloropropane	< 20	20	ug/L	6/15/01	SW846 8260B
1,1-Dichloropropene	< 20	20	ug/L	6/15/01	SW846 8260B
cis-1,3-Dichloropropene	< 20	20	ug/L	6/15/01	SW846 8260B
trans-1,3-Dichloropropene	< 20	20	ug/L	6/15/01	SW846 8260B
Ethylbenzene	580	20	ug/L	6/15/01	SW846 8260B
Diethyl ether	< 20	20	ug/L	6/15/01	SW846 8260B
Fluorotrichloromethane	< 20	20	ug/L	6/15/01	SW846 8260B
Hexachlorobutadiene	< 20	20	ug/L	6/15/01	SW846 8260B

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-3

Lab Sample Number : 812598-006

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

Isopropylbenzene	31	20	ug/L	6/15/01	SW846 8260B
p-Isopropyltoluene	< 20	20	ug/L	6/15/01	SW846 8260B
Methylene chloride	< 20	20	ug/L	6/15/01	SW846 8260B
4-Methyl-2-pentanone	< 100	100	ug/L	6/15/01	SW846 8260B
Methyl-tert-butyl-ether	< 20	20	ug/L	6/15/01	SW846 8260B
Naphthalene	200	20	ug/L	6/15/01	SW846 8260B
n-Propylbenzene	90	20	ug/L	6/15/01	SW846 8260B
Styrene	< 20	20	ug/L	6/15/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,1,1,2-Tetrachloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
Tetrachloroethene	< 20	20	ug/L	6/15/01	SW846 8260B
Toluene	2400	20	ug/L	6/15/01	SW846 8260B
1,2,3-Trichlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
1,2,4-Trichlorobenzene	< 20	20	ug/L	6/15/01	SW846 8260B
1,1,1-Trichloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,1,2-Trichloroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 20	20	ug/L	6/15/01	SW846 8260B
1,2,4-Trimethylbenzene	750	20	ug/L	6/15/01	SW846 8260B
Trichloroethene	< 20	20	ug/L	6/15/01	SW846 8260B
1,2,3-Trichloropropane	< 20	20	ug/L	6/15/01	SW846 8260B
Tetrahydrofuran	< 100	100	ug/L	6/15/01	SW846 8260B
1,3,5-Trimethylbenzene	190	20	ug/L	6/15/01	SW846 8260B
Vinyl chloride	< 20	20	ug/L	6/15/01	SW846 8260B
Xylenes, -m, -p	2500	40	ug/L	6/15/01	SW846 8260B
Xylene, -o	1100	20	ug/L	6/15/01	SW846 8260B
4-Bromofluorobenzene	85	---	%Recov	6/15/01	SW846 8260B
Dibromofluoromethane	93	---	%Recov	6/15/01	SW846 8260B
Toluene-d8	94	---	%Recov	6/15/01	SW846 8260B

- Analytical Report -

Project Name :  
Project Number : 41017023 Client : TERRACON ENVIRONMENTAL  
Field ID : PW-3 Report Date : 6/20/01  
Lab Sample Number : 812598-006 Collection Date : 6/12/01  
MDH LAB ID : 055-999-334 Matrix Type : WATER

Organic Results

PAH - SEMIVOLATILES Prep Method: SW846 3510 Prep Date: 6/15/01 Analyst: AVS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
2-Fluorobiphenyl	74	---	%Recov		6/15/01	SW846 8270
Terphenyl-d14	87	---	%Recov		6/15/01	SW846 8270
Nitrobenzene-d5	85	---	%Recov		6/15/01	SW846 8270
Acenaphthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Acenaphthylene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Anthracene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(a)anthracene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(a)pyrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(b)fluoranthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(g,h,i)perylene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Benzo(k)fluoranthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Indeno(1,2,3-cd)pyrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Chrysene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Dibenzo(a,h)anthracene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Fluoranthene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Fluorene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
2-Methylnaphthalene	160	40	ug/L		6/15/01	SW846 8270
1-Methylnaphthalene	70	40	ug/L		6/15/01	SW846 8270
Naphthalene	270	40	ug/L		6/15/01	SW846 8270
Phenanthrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270
Pyrene	< 1.0	1.0	ug/L		6/15/01	SW846 8270

Organic Results

PAH-BLANK Prep Method: SW846 3510C Prep Date: 6/15/01 Analyst: AVS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
PAH-Blank	922-13				6/15/01	SW846 8270C

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-3

Lab Sample Number : 812598-006

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

Organic Results

VOC-BLK-W

Prep Method:

Prep Date:

Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
VOC-BLK	923-93					

- Analytical Report -

Project Name :  
Project Number : 41017023 Client : TERRACON ENVIRONMENTAL  
Field ID : PW-4 Report Date : 6/20/01  
Lab Sample Number : 812598-007 Collection Date : 6/12/01  
MDH LAB ID : 055-999-334 Matrix Type : WATER

Organic Results

DIESEL RANGE ORGANICS - WATER

Prep Method: Wi MOD DRO Prep Date: 6/15/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	300	110	ug/l		6/15/01	Wi MOD DRO
Blank spike	76	---	%Recov		6/15/01	Wi MOD DRO
Blank spike duplicate	86	---	%Recov		6/15/01	Wi MOD DRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD DRO

Organic Results

GASOLINE RANGE ORGANICS - WATER

Prep Method: Wi MOD GRO Prep Date: 6/14/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	< 50	50	ug/l		6/15/01	Wi MOD GRO
Blank Spike	97	---	%Recov		6/15/01	Wi MOD GRO
Blank Spike Duplicate	96	---	%Recov		6/15/01	Wi MOD GRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD GRO

Organic Results

MDH 465 VOLATILES - WATER

Prep Method: SW846 5030B Prep Date: 6/15/01 Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 5.0	5.0	ug/L		6/16/01	SW846 8260B
Allyl Chloride	< 5.0	5.0	ug/L		6/16/01	SW846 8260B
Benzene	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromochloromethane	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromobenzene	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromomethane	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		6/16/01	SW846 8260B

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-4

Lab Sample Number : 812598-007

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

s-Butylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
t-Butylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
n-Butylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chloroform	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chlorodibromomethane	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
Chloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chloromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
2-Chlorotoluene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
4-Chlorotoluene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,3-Dichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,4-Dichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
cis-1,2-Dichloroethene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Dichlorodifluoromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
trans-1,2-Dichloroethene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Dichlorofluoromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,3-Dichloropropane	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
2,2-Dichloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1-Dichloropropene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Ethylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Diethyl ether	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Fluorotrichloromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Hexachlorobutadiene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B

**- Analytical Report -**

Project Name :

Project Number : 41017023

Field ID : PW-4

Lab Sample Number : 812598-007

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

Isopropylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
p-Isopropyltoluene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Methylene chloride	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
Methyl-tert-butyl-ether	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Naphthalene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
n-Propylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Styrene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Tetrachloroethene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Toluene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2,3-Trichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2,4-Trichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2,4-Trimethylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Trichloroethene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Tetrahydrofuran	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
1,3,5-Trimethylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Vinyl chloride	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Xylenes, -m, -p	< 2.0	2.0	ug/L	6/16/01	SW846 8260B
Xylene, -o	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
4-Bromofluorobenzene	84	--	%Recov	6/16/01	SW846 8260B
Dibromofluoromethane	94	--	%Recov	6/16/01	SW846 8260B
Toluene-d8	94	--	%Recov	6/16/01	SW846 8260B

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-4

Lab Sample Number : 812598-007

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

Organic Results

PAH - SEMIVOLATILES

Prep Method: SW846 3510 Prep Date: 6/15/01 Analyst: AVS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
2-Fluorobiphenyl	79	---	%Recov		6/18/01	SW846 8270
Terphenyl-d14	87	---	%Recov		6/18/01	SW846 8270
Nitrobenzene-d5	75	---	%Recov		6/18/01	SW846 8270
Acenaphthene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Acenaphthylene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Anthracene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Benzo(a)anthracene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Benzo(a)pyrene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Benzo(b)fluoranthene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Benzo(g,h,i)perylene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Benzo(k)fluoranthene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Indeno(1,2,3-cd)pyrene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Chrysene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Dibenzo(a,h)anthracene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Fluoranthene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Fluorene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
2-Methylnaphthalene	0.84	0.16	ug/L		6/18/01	SW846 8270
1-Methylnaphthalene	0.43	0.16	ug/L		6/18/01	SW846 8270
Naphthalene	1.0	0.16	ug/L		6/18/01	SW846 8270
Phenanthrene	< 0.16	0.16	ug/L		6/18/01	SW846 8270
Pyrene	< 0.16	0.16	ug/L		6/18/01	SW846 8270

Organic Results

PAH-BLANK

Prep Method: SW846 3510C Prep Date: 6/15/01 Analyst: AVS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
PAH-Blank	922-13				6/15/01	SW846 8270C

---

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-4

Lab Sample Number : 812598-007

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

---

Organic Results

VOC-BLK-W

Prep Method:

Prep Date:

Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
VOC-BLK	923-96					

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-5

Lab Sample Number : 812598-008

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

Organic Results

DIESEL RANGE ORGANICS - WATER

Prep Method: Wi MOD DRO Prep Date: 6/15/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	140	110	ug/l		6/15/01	Wi MOD DRO
Blank spike	76	---	%Recov		6/15/01	Wi MOD DRO
Blank spike duplicate	86	---	%Recov		6/15/01	Wi MOD DRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD DRO

Organic Results

GASOLINE RANGE ORGANICS - WATER

Prep Method: Wi MOD GRO Prep Date: 6/14/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	150	50	ug/l		6/15/01	Wi MOD GRO
Blank Spike	97	---	%Recov		6/15/01	Wi MOD GRO
Blank Spike Duplicate	96	---	%Recov		6/15/01	Wi MOD GRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD GRO

Organic Results

MDH 465 VOLATILES - WATER

Prep Method: SW846 5030B Prep Date: 6/15/01 Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 5.0	5.0	ug/L		6/16/01	SW846 8260B
Allyl Chloride	< 5.0	5.0	ug/L		6/16/01	SW846 8260B
Benzene	1.3	1.0	ug/L		6/16/01	SW846 8260B
Bromochloromethane	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromobenzene	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromomethane	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		6/16/01	SW846 8260B

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-5

Lab Sample Number : 812598-008

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

s-Butylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
t-Butylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
n-Butylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chloroform	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chlorodibromomethane	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
Chloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chloromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
2-Chlorotoluene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
4-Chlorotoluene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,3-Dichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,4-Dichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
cis-1,2-Dichloroethene	85	1.0	ug/L	6/16/01	SW846 8260B
Dichlorodifluoromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
trans-1,2-Dichloroethene	59	1.0	ug/L	6/16/01	SW846 8260B
Dichlorofluoromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,3-Dichloropropane	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
2,2-Dichloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1-Dichloropropene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Ethylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Diethyl ether	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Fluorotrichloromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Hexachlorobutadiene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B

**- Analytical Report -**

Project Name :

Project Number : 41017023

Field ID : PW-5

Lab Sample Number : 812598-008

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

Isopropylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
p-Isopropyltoluene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Methylene chloride	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
Methyl-tert-butyl-ether	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Naphthalene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
n-Propylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Styrene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Tetrachloroethene	160	1.0	ug/L	6/16/01	SW846 8260B
Toluene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2,3-Trichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2,4-Trichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2,4-Trimethylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Trichloroethene	72	1.0	ug/L	6/16/01	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Tetrahydrofuran	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
1,3,5-Trimethylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Vinyl chloride	1.7	1.0	ug/L	6/16/01	SW846 8260B
Xylenes, -m, -p	< 2.0	2.0	ug/L	6/16/01	SW846 8260B
Xylene, -o	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
4-Bromofluorobenzene	86	---	%Recov	6/16/01	SW846 8260B
Dibromofluoromethane	95	---	%Recov	6/16/01	SW846 8260B
Toluene-d8	94	---	%Recov	6/16/01	SW846 8260B

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-5

Lab Sample Number : 812598-008

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

Organic Results

VOC-BLK-W		Prep Method:		Prep Date:	Analyst:	
Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
VOC-BLK	923-96					

**- Analytical Report -**

Project Name :

Project Number : 41017023

Field ID : PW-6

Lab Sample Number : 812598-009

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

**Organic Results****DIESEL RANGE ORGANICS - WATER**

Prep Method: Wi MOD DRO Prep Date: 6/15/01 Analyst: DJB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
DIESEL RANGE ORGANICS	890	100	ug/l		6/15/01	Wi MOD DRO
Blank spike	76	---	%Recov		6/15/01	Wi MOD DRO
Blank spike duplicate	86	---	%Recov		6/15/01	Wi MOD DRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD DRO

**Organic Results****GASOLINE RANGE ORGANICS - WATER**

Prep Method: Wi MOD GRO Prep Date: 6/14/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	260	50	ug/l		6/15/01	Wi MOD GRO
Blank Spike	97	---	%Recov		6/15/01	Wi MOD GRO
Blank Spike Duplicate	96	---	%Recov		6/15/01	Wi MOD GRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD GRO

**Organic Results****MDH 465 VOLATILES - WATER**

Prep Method: SW846 5030B Prep Date: 6/15/01 Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 5.0	5.0	ug/L		6/16/01	SW846 8260B
Allyl Chloride	< 5.0	5.0	ug/L		6/16/01	SW846 8260B
Benzene	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromochloromethane	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromobenzene	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
Bromomethane	< 1.0	1.0	ug/L		6/16/01	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		6/16/01	SW846 8260B

**- Analytical Report -**

Project Name :

Project Number : 41017023

Field ID : PW-6

Lab Sample Number : 812598-009

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

s-Butylbenzene	1.2	1.0	ug/L	6/16/01	SW846 8260B
t-Butylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
n-Butylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chloroform	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chlorodibromomethane	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
Chloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Chloromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
2-Chlorotoluene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
4-Chlorotoluene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,3-Dichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,4-Dichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
cis-1,2-Dichloroethene	5.6	1.0	ug/L	6/16/01	SW846 8260B
Dichlorodifluoromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
trans-1,2-Dichloroethene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Dichlorofluoromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,3-Dichloropropane	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
2,2-Dichloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1-Dichloropropene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Ethylbenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Diethyl ether	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Fluorotrichloromethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Hexachlorobutadiene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-6

Lab Sample Number : 812598-009

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

Isopropylbenzene	5.7	1.0	ug/L	6/16/01	SW846 8260B
p-Isopropyltoluene	5.3	1.0	ug/L	6/16/01	SW846 8260B
Methylene chloride	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
Methyl-tert-butyl-ether	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Naphthalene	12	1.0	ug/L	6/16/01	SW846 8260B
n-Propylbenzene	5.9	1.0	ug/L	6/16/01	SW846 8260B
Styrene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Tetrachloroethene	2.6	1.0	ug/L	6/16/01	SW846 8260B
Toluene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2,3-Trichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2,4-Trichlorobenzene	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
1,2,4-Trimethylbenzene	100	1.0	ug/L	6/16/01	SW846 8260B
Trichloroethene	3.0	1.0	ug/L	6/16/01	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L	6/16/01	SW846 8260B
Tetrahydrofuran	< 5.0	5.0	ug/L	6/16/01	SW846 8260B
1,3,5-Trimethylbenzene	17	1.0	ug/L	6/16/01	SW846 8260B
Vinyl chloride	1.3	1.0	ug/L	6/16/01	SW846 8260B
Xylenes, -m, -p	3.5	2.0	ug/L	6/16/01	SW846 8260B
Xylene, -o	9.7	1.0	ug/L	6/16/01	SW846 8260B
4-Bromofluorobenzene	85	---	%Recov	6/16/01	SW846 8260B
Dibromofluoromethane	95	---	%Recov	6/16/01	SW846 8260B
Toluene-d8	93	---	%Recov	6/16/01	SW846 8260B

---

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : PW-6

Lab Sample Number : 812598-009

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

---

Organic Results

VOC-BLK-W

Prep Method:

Prep Date:

Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
VOC-BLK	923-96					

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : TRIP BLANK

Lab Sample Number : 812598-010

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

Organic Results

GASOLINE RANGE ORGANICS - WATER

Prep Method: Wi MOD GRO Prep Date: 6/14/01 Analyst: MSB

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
GASOLINE RANGE ORGANIC	< 50	50	ug/l		6/15/01	Wi MOD GRO
Blank Spike	97	---	%Recov		6/15/01	Wi MOD GRO
Blank Spike Duplicate	96	---	%Recov		6/15/01	Wi MOD GRO
Blank	< 50	50	ug/l		6/15/01	Wi MOD GRO

Organic Results

MDH 465 VOLATILES - WATER

Prep Method: SW846 5030B Prep Date: 6/15/01 Analyst: TLT

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Acetone	< 5.0	5.0	ug/L		6/15/01	SW846 8260B
Allyl Chloride	< 5.0	5.0	ug/L		6/15/01	SW846 8260B
Benzene	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Bromochloromethane	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Bromobenzene	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Bromomethane	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		6/15/01	SW846 8260B
s-Butylbenzene	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
t-Butylbenzene	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
n-Butylbenzene	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Chloroform	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Chlorodibromomethane	< 5.0	5.0	ug/L		6/15/01	SW846 8260B
Chloroethane	< 1.0	1.0	ug/L		6/15/01	SW846 8260B
Chloromethane	< 1.0	1.0	ug/L		6/15/01	SW846 8260B

**- Analytical Report -**

Project Name :

Project Number : 41017023

Field ID : TRIP BLANK

Lab Sample Number : 812598-010

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

2-Chlorotoluene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
4-Chlorotoluene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,3-Dichlorobenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,4-Dichlorobenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2-Dichlorobenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
cis-1,2-Dichloroethene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Dichlorodifluoromethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
trans-1,2-Dichloroethene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Dichlorofluoromethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,3-Dichloropropane	< 5.0	5.0	ug/L	6/15/01	SW846 8260B
2,2-Dichloropropane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1-Dichloropropene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Ethylbenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Diethyl ether	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Fluorotrichloromethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Hexachlorobutadiene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Isopropylbenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
p-Isopropyltoluene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Methylene chloride	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L	6/15/01	SW846 8260B
Methyl-tert-butyl-ether	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Naphthalene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
n-Propylbenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Styrene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B

- Analytical Report -

Project Name :

Project Number : 41017023

Field ID : TRIP BLANK

Lab Sample Number : 812598-010

MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL

Report Date : 6/20/01

Collection Date : 6/12/01

Matrix Type : WATER

1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Tetrachloroethene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Toluene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2,3-Trichlorobenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2,4-Trichlorobenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,1,2-Trichlorotrifluoroethane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2,4-Trimethylbenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Trichloroethene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Tetrahydrofuran	< 5.0	5.0	ug/L	6/15/01	SW846 8260B
1,3,5-Trimethylbenzene	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Vinyl chloride	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
Xylenes, -m, -p	< 2.0	2.0	ug/L	6/15/01	SW846 8260B
Xylene, -o	< 1.0	1.0	ug/L	6/15/01	SW846 8260B
4-Bromofluorobenzene	86	---	%Recov	6/15/01	SW846 8260B
Dibromofluoromethane	94	---	%Recov	6/15/01	SW846 8260B
Toluene-d8	93	---	%Recov	6/15/01	SW846 8260B

Organic Results

VOC-BLK-W		Prep Method:		Prep Date:		Analyst:	
Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method	
VOC-BLK	923-96						

- Analytical Report -

Project Name :  
Project Number : 41017023  
Field ID : MEOH BLANK  
Lab Sample Number : 812598-011  
MDH LAB ID : 055-999-334

Client : TERRACON ENVIRONMENTAL  
Report Date : 6/19/01  
Collection Date : 6/12/01  
Matrix Type : METHANOL

Organic Results

BTEX + MTBE - METHANOL

Prep Method: SW846 5030B Prep Date: 6/15/01 Analyst: PMS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
a,a,a-Trifluorotoluene	104	---	%Recov		6/16/01	MOD 8021B
Benzene	< 25	25	ug/l		6/16/01	MOD 8021B
Ethylbenzene	< 25	25	ug/l		6/16/01	MOD 8021B
Methyl-tert-butyl-ether	< 25	25	ug/l		6/16/01	MOD 8021B
Toluene	< 25	25	ug/l		6/16/01	MOD 8021B
Xylenes, -m, -p	< 25	25	ug/l		6/16/01	MOD 8021B
Xylene, -o	< 25	25	ug/l		6/16/01	MOD 8021B

Organic Results

BTEX BLANK

Prep Method: Prep Date: 6/15/01 Analyst:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
BTEX - Blank	941-12					

Organic Results

GASOLINE RANGE ORGANICS - METHANOL

Prep Method: Wi MOD GRO Prep Date: 6/15/01 Analyst: PMS

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Gasoline Range Organics	< 2500	2500	ug/L		6/16/01	Wi MOD GRO
Blank Spike	100	---	%Recov		6/16/01	Wi MOD GRO
Blank Spike Duplicate	96	---	%Recov		6/16/01	Wi MOD GRO
Blank	< 50	50	ug/L		6/16/01	Wi MOD GRO

Form I  
Extraction Blank

Anal by: PMS  
 Anal date: 6/15/01  
 Blank #: 941-12  
 LCS: NA  
 LCSD: NA

	LOD	LOQ	REPORTED RESULT	UNITS	Q <sub>1</sub>
Benzene	25	60	ND	ug/kg	
Toluene	25	60	ND	ug/kg	
Ethylbenzene	25	60	ND	ug/kg	
m/p-Xylene	25	60	ND	ug/kg	
o-Xylene	25	60	ND	ug/kg	
Methyl tert-butyl ether	25	60	ND	ug/kg	
a,a,a-Trifluorotoluene			102	% recov	

B Analyte present in blank. Value in sample(s)  
 may be suspect.  
 ND Not Detected

PAH: 8270 Water Method Blank

Analyzed by: AVS

Analysis Date: 06/15/2001

Method Blk #: 922-13

	LOD	LOQ	REPORTED RESULT	UNITS	QUALIFIER
Acenaphthene	0.018	0.05	ND	ug/L	
Acenaphthylene	0.023	0.05	ND	ug/L	
Anthracene	0.02	0.05	ND	ug/L	
Benzo(a)anthracene	0.019	0.05	ND	ug/L	
Benzo(a)pyrene	0.012	0.05	ND	ug/L	
Benzo(b)fluoranthene	0.014	0.05	ND	ug/L	
Benzo(g,h,i)perylene	0.015	0.05	ND	ug/L	
Benzo(k)fluoranthene	0.013	0.05	ND	ug/L	
Chrysene	0.018	0.05	ND	ug/L	
Dibenzo(a)anthracene	0.017	0.05	ND	ug/L	
Fluoranthene	0.028	0.05	ND	ug/L	
Fluorene	0.021	0.05	ND	ug/L	
Indeno(1,2,3-c,d)pyrene	0.014	0.05	ND	ug/L	
2-Methylnaphthalene	0.028	0.05	ND	ug/L	
1-Methylnaphthalene	0.027	0.05	ND	ug/L	
Naphthalene	0.027	0.05	ND	ug/L	
Phenanthrene	0.019	0.05	ND	ug/L	
Pyrene	0.02	0.05	ND	ug/L	
Nitrobenzene-d5			82.6	% recov	
Terphenyl-d14			83.3	% recov	
2-Fluorobiphenyl			115.8	% recov	

FORM 1  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK923-96

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS206152001A

Matrix: (soil/water) WATER

Lab Sample ID: VBLK923-96

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: 06150134

Level: (low/med) LOW

Date Received: \_\_\_\_\_

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 06/15/01

GC Column: DB-624 ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-83-9	DICHLORODIFLUOROMETHANE	1.00	U
74-87-3	CHLOROMETHANE	1.00	U
75-01-4	VINYL CHLORIDE	1.00	U
74-83-9	BROMOMETHANE	1.00	U
75-00-3	CHLOROETHANE	1.00	U
75-43-4	DICHLOROFLUOROMETHANE	1.00	U
75-69-4	TRICHLOROFLUOROMETHANE	1.00	U
60-29-7	DIETHYL ETHER	1.00	U
75-35-4	1 1-DICHLOROETHENE	1.00	U
76-13-1	1 1 2-TRICHLOROTRIFLUOROETHA	1.00	U
67-64-1	ACETONE	1.47	J
107-05-1	ALLYL CHLORIDE	1.00	U
75-09-2	METHYLENE CHLORIDE	1.00	U
156-60-5	TRANS-1 2-DICHLOROETHENE	1.00	U
1634-04-4	METHYL T-BUTYL ETHER	1.00	U
75-34-3	1 1-DICHLOROETHANE	1.00	U
590-20-7	2 2-DICHLOROPROPANE	1.00	U
156-59-2	CIS-1 2-DICHLOROETHENE	1.00	U
78-93-3	2-BUTANONE	5.00	U
74-97-5	BROMOCHLOROMETHANE	1.00	U
109-99-9	TETRAHYDROFURAN	5.00	U
67-66-3	CHLOROFORM	1.00	U
71-55-6	1 1 1-TRICHLOROETHANE	1.00	U
56-23-5	CARBON TETRACHLORIDE	1.00	U
563-58-6	1 1-DICHLOROPROPENE	1.00	U
71-43-2	BENZENE	1.00	U
107-06-2	1 2-DICHLOROETHANE	1.00	U
79-01-6	TRICHLOROETHENE	1.00	U
78-87-5	1 2-DICHLOROPROPANE	1.00	U
74-95-3	DIBROMOMETHANE	1.00	U
75-27-4	BROMODICHLOROMETHANE	1.00	U
10061-01-5	CIS-1 3-DICHLOROPROPENE	1.00	U
108-10-1	4-METHYL-2-PENTANONE	5.00	U

FORM 1  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK923-96

Lab Name: EN CHEM - GREEN BAY                      Contract: \_\_\_\_\_

Lab Code: ENCHEMGB      Case No.: \_\_\_\_\_      SAS No.: \_\_\_\_\_      SDG No.: MS206152001A

Matrix: (soil/water) WATER                      Lab Sample ID: VBLK923-96

Sample wt/vol:              5.000 (g/mL) ML                      Lab File ID:      06150134

Level:      (low/med)      LOW                      Date Received: \_\_\_\_\_

% Moisture: not dec. \_\_\_\_\_                      Date Analyzed: 06/15/01

GC Column: DB-624      ID: 0.18 (mm)                      Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)                      Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-88-3	TOLUENE	1.00	U
10061-02-6	TRANS-1 3-DICHLOROPROPENE	1.00	U
79-00-5	1 1 2-TRICHLOROETHANE	1.00	U
127-18-4	TETRACHLOROETHENE	1.00	U
142-28-9	1 3-DICHLOROPROPANE	1.00	U
124-48-1	DIBROMOCHLOROMETHANE	1.00	U
106-93-4	1 2-DIBROMOETHANE	1.00	U
108-90-7	CHLOROBENZENE	1.00	U
630-26-6	1 1 1 2-TETRACHLOROETHANE	1.00	U
100-41-4	ETHYL BENZENE	1.00	U
108-38-3	M- P-XYLENE	2.00	U
95-47-6	O-XYLENE	1.00	U
100-42-5	STYRENE	1.00	U
75-25-2	BROMOFORM	1.00	U
98-82-8	ISOPROPYLBENZENE	1.00	U
108-86-1	BROMOBENZENE	1.00	U
79-34-5	1 1 2 2-TETRACHLOROETHANE	1.00	U
96-18-4	1 2 3-TRICHLOROPROPANE	1.00	U
103-65-1	N-PROPYLBENZENE	1.00	U
95-49-8	2-CHLOROTOLUENE	1.00	U
106-43-4	4-CHLOROTOLUENE	1.00	U
108-67-8	1 3 5-TRIMETHYLBENZENE	1.00	U
98-06-6	TERT-BUTYLBENZENE	1.00	U
95-63-6	1 2 4-TRIMETHYLBENZENE	1.00	U
135-98-8	SEC-BUTYLBENZENE	1.00	U
541-73-1	1 3-DICHLOROBENZENE	1.00	U
99-878-6	P-ISOPROPYLTOLUENE (CYMENE)	1.00	U
106-46-7	1 4-DICHLOROBENZENE	1.00	U
95-50-1	1 2-DICHLOROBENZENE	1.00	U
104-51-8	N-BUTYLBENZENE	1.00	U
96-12-8	1 2-DIBROMO-3-CHLOROPROPANE	1.00	U
95-63-6	1 2 4-TRICHLOROBENZENE	1.00	U
87-68-3	HEXACHLOROBUTADIENE	1.00	U

FORM 1  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK923-96

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS206152001A

Matrix: (soil/water) WATER

Lab Sample ID: VBLK923-96

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: 06150134

Level: (low/med) LOW

Date Received: \_\_\_\_\_

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 06/15/01

GC Column: DB-624 ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg)	UG/L
91-20-3-----	NAPHTHALENE	1.00	U
96-18-4-----	1 2 3-TRICHLOROBENZENE	1.00	U

FORM 1  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK923-93

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS206152001

Matrix: (soil/water) WATER

Lab Sample ID: VBLK923-93

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: 06150104

Level: (low/med) LOW

Date Received: \_\_\_\_\_

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 06/15/01

GC Column: DB-624 ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	Q
74-83-9	DICHLORODIFLUOROMETHANE	1.00 U
74-87-3	CHLOROMETHANE	1.00 U
75-01-4	VINYL CHLORIDE	1.00 U
74-83-9	BROMOMETHANE	1.00 U
75-00-3	CHLOROETHANE	1.00 U
75-43-4	DICHLOROFUOROMETHANE	1.00 U
75-69-4	TRICHLOROFUOROMETHANE	1.00 U
60-29-7	DIETHYL ETHER	1.00 U
107-62-8	ACROLEIN	5.00 U
75-35-4	1 1-DICHLOROETHENE	1.00 U
76-13-1	1 1 2-TRICHLOROTRIFLUOROETHA	1.00 U
67-64-1	ACETONE	2.99 J
74-88-4	IODOMETHANE	1.00 U
75-15-0	CARBON DISULFIDE	1.00 U
107-05-1	ALLYL CHLORIDE	1.00 U
75-09-2	METHYLENE CHLORIDE	1.00 U
107-13-1	ACRYLONITRILE	5.00 U
156-60-5	TRANS-1 2-DICHLOROETHENE	1.00 U
1634-04-4	METHYL T-BUTYL ETHER	1.00 U
110-545-3	N-HEXANE	1.00 U
75-34-3	1 1-DICHLOROETHANE	1.00 U
108-05-4	VINYL ACETATE	5.00 U
108-20-3	DIISOPROPYL ETHER	1.00 U
590-20-7	2 2-DICHLOROPROPANE	1.00 U
156-59-2	CIS-1 2-DICHLOROETHENE	1.00 U
78-93-3	2-BUTANONE	5.00 U
74-97-5	BROMOCHLOROMETHANE	1.00 U
109-99-9	TETRAHYDROFURAN	5.00 U
67-66-3	CHLOROFORM	1.00 U
71-55-6	1 1 1-TRICHLOROETHANE	1.00 U
56-23-5	CARBON TETRACHLORIDE	1.00 U
563-58-6	1 1-DICHLOROPROPENE	1.00 U
71-43-2	BENZENE	1.00 U

FORM 1  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK923-93

Lab Name: EN CHEM - GREEN BAY Contract: \_\_\_\_\_  
 Lab Code: ENCHEMGB Case No.: \_\_\_\_\_ SAS No.: \_\_\_\_\_ SDG No.: MS206152001  
 Matrix: (soil/water) WATER Lab Sample ID: VBLK923-93  
 Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 06150104  
 Level: (low/med) LOW Date Received: \_\_\_\_\_  
 % Moisture: not dec. \_\_\_\_\_ Date Analyzed: 06/15/01  
 GC Column: DB-624 ID: 0.18 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1 2-DICHLOROETHANE	1.00	U
462-95-3	DIETHOXYMETHANE	5.00	U
79-01-6	TRICHLOROETHENE	1.00	U
78-87-5	1 2-DICHLOROPROPANE	1.00	U
74-95-3	DIBROMOMETHANE	1.00	U
75-27-4	BROMODICHLOROMETHANE	1.00	U
110-75-8	2-CHLOROETHYL VINYL ETHER	1.00	U
10061-01-5	CIS-1 3-DICHLOROPROPENE	1.00	U
108-10-1	4-METHYL-2-PENTANONE	5.00	U
108-88-3	TOLUENE	1.00	U
10061-02-6	TRANS-1 3-DICHLOROPROPENE	1.00	U
79-00-5	1 1 2-TRICHLOROETHANE	1.00	U
127-18-4	TETRACHLOROETHENE	1.00	U
142-28-9	1 3-DICHLOROPROPANE	1.00	U
591-78-6	2-HEXANONE	1.00	U
124-48-1	DIBROMOCHLOROMETHANE	1.00	U
106-93-4	1 2-DIBROMOETHANE	1.00	U
108-90-7	CHLOROBENZENE	1.00	U
630-26-6	1 1 1 2-TETRACHLOROETHANE	1.00	U
100-41-4	ETHYL BENZENE	1.00	U
108-38-3	M- P-XYLENE	2.00	U
95-47-6	O-XYLENE	1.00	U
100-42-5	STYRENE	1.00	U
75-25-2	BROMOFORM	1.00	U
98-82-8	ISOPROPYLBENZENE	1.00	U
110-57-6	TRANS-1 4-DICHLORO-2-BUTENE	1.00	U
108-86-1	BROMOBENZENE	1.00	U
79-34-5	1 1 2 2-TETRACHLOROETHANE	1.00	U
96-18-4	1 2 3-TRICHLOROPROPANE	1.00	U
1476-11-5	CIS-1 4-DICHLORO-2-BUTENE	1.00	U
103-65-1	N-PROPYLBENZENE	1.00	U
95-49-8	2-CHLOROTOLUENE	1.00	U
106-43-4	4-CHLOROTOLUENE	1.00	U

FORM 1  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK923-93

Lab Name: EN CHEM - GREEN BAY

Contract:

Lab Code: ENCHEMGB

Case No.:

SAS No.:

SDG No.: MS206152001

Matrix: (soil/water) WATER

Lab Sample ID: VBLK923-93

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: 06150104

Level: (low/med) LOW

Date Received: \_\_\_\_\_

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 06/15/01

GC Column: DB-624 ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

108-67-8-----1 3 5-TRIMETHYLBENZENE	1.00	U
98-06-6-----TERT-BUTYLBENZENE	1.00	U
95-63-6-----1 2 4-TRIMETHYLBENZENE	1.00	U
135-98-8-----SEC-BUTYLBENZENE	1.00	U
541-73-1-----1 3-DICHLOROBENZENE	1.00	U
99-878-6-----P-ISOPROPYLTOLUENE (CYMENE)	1.00	U
106-46-7-----1 4-DICHLOROBENZENE	1.00	U
95-50-1-----1 2-DICHLOROBENZENE	1.00	U
104-51-8-----N-BUTYLBENZENE	1.00	U
67-72-1-----HEXACHLOROETHANE	1.00	U
96-12-8-----1 2-DIBROMO-3-CHLOROPROPANE	1.00	U
95-63-6-----1 2 4-TRICHLOROBENZENE	1.00	U
87-68-3-----HEXACHLOROBUTADIENE	1.00	U
91-20-3-----NAPHTHALENE	1.00	U
96-18-4-----1 2 3-TRICHLOROBENZENE	1.00	U
91-57-6-----2-METHYLNAPHTHALENE	0.24	J
-----TOTAL 1 2-DICHLOROETHENE	2.00	U
-----TOTAL XYLENES	3.00	U
80-62-6-----METHYL METHACRYLATE	1.00	U
97-63-2-----ETHYL METHACRYLATE	1.00	U

(Please Print Legibly)  
 Company Name: Terracon  
 Branch or Location: White Bear Lake, MN  
 Project Contact: Paul Wiese  
 Telephone: 651-770-1500  
 Project Number: 41017023  
 Project Name: \_\_\_\_\_  
 Project State: MN  
 Sampled By (Print): Jade M. Schulz



1241 Bellevue St., Suite 9  
 Green Bay, WI 54302  
 920-469-2436  
 FAX 920-469-8827

525 Science Drive  
 Madison, WI 53711  
 608-232-3300  
 FAX: 608-233-0502

### CHAIN OF CUSTODY

59778

Page 1 of 1

\*Preservation Codes  
 A=None B=HCL C=H2SO4 D=HN03 E=EnCore F=Methanol G=NaOH  
 H = Sodium Bisulfate Solution I = Other  
 FILTERED? (YES/NO) \_\_\_\_\_  
 PRESERVATION (CODE)\* \_\_\_\_\_

P.O. # \_\_\_\_\_ Quote # \_\_\_\_\_  
 Mail Report To: Paul Wiese  
 Company: Terracon  
 Address: 3535 Hoffman Rd E  
White Bear Lake, MN 55110

**Data Package Options**  
 (please circle if requested)  
 Results Only  
 EnChem Level III (Subject to Surcharge)  
 EnChem Level IV (Subject to Surcharge)

Regulatory Program  
 UST  
 RCRA  
 SDWA  
 NPDES  
 CERCLA

Matrix Codes  
 W=Water  
 S=Soil  
 A=Air  
 C=Charcoal  
 B=Biota  
 Sl=Sludge

ANALYSES REQUESTED  
 BTEX/MIBE  
 GRO  
 DRD  
 PAH  
 VOC

TOTAL # OF BOTTLES SENT

Invoice To: SAA  
 Company: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Mail Invoice To: \_\_\_\_\_

LABORATORY ID (Lab Use Only)	FIELD ID	COLLECTION		MATRIX	ANALYSES REQUESTED							TOTAL # OF BOTTLES SENT	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)
		DATE	TIME		BTEX/MIBE	GRO	DRD	PAH	VOC					
001	P-1 30-32	6/11/01	11:15	S	✓	✓	✓	✓	✓	✓	3		gcl 40cc, 1-20cc M, 1-20cc	
002	PW-1		12:15	W	✓	✓	✓	✓	✓	✓	7		2-16 amber, 5-40cc	
003	P-2 30-32		15:00	S	✓	✓	✓	✓	✓	✓	3		1-40cc, 1-20cc M, 1-20cc	
004	PW-2		15:15	W	✓	✓	✓	✓	✓	✓	7		2-16 amber, 6-40cc	
005	P-3 30-32	6/12/01	11:15	S	✓	✓	✓	✓	✓	✓	3		1-40cc, 1-20cc M, 1-20cc	
006	PW-3		11:45	W	✓	✓	✓	✓	✓	✓	7		2-16 amber, 5-40cc	
007	PW-4		14:00	W	✓	✓	✓	✓	✓	✓	7			
008	PW-5		15:30	W	✓	✓	✓	✓	✓	✓	6		1-16 amber, 5-40cc	
009	PW-6		16:45	W	✓	✓	✓	✓	✓	✓	6			
010	Trip blank*												2-40cc - 120 blue	
011	MeOH blank**												2-40cc MeOH blue	

Rush Turnaround Time Requested (TAT) - Prelim  
 (Rush TAT subject to approval/surcharge)  
 Date Needed: \_\_\_\_\_  
 Transmit Prelim Rush Results by (circle):  
 Phone Fax E-Mail  
 Phone #: \_\_\_\_\_  
 Fax #: \_\_\_\_\_  
 E-Mail Address: \_\_\_\_\_

Relinquished By: Jade M Schulz Date/Time: 6/13/01 9:00  
 Relinquished By: [Signature] Date/Time: 6-13 1900  
 Relinquished By: Dunham Date/Time: 6/14/01 8:00  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received By: [Signature] Date/Time: \_\_\_\_\_  
 Received By: [Signature] Date/Time: \_\_\_\_\_  
 Received By: [Signature] Date/Time: 6/14/01 8:00  
 Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

En Chem Project No: 812598  
 Sample Receipt Temp: 25°C / 15°C / 1°C  
 Sample Receipt pH (Wet/Metals): \_\_\_\_\_  
 Cooler Custody Seal Present / Not Present: Present  
 Intact / Not Intact: Intact

Samples on HOLD are subject to special pricing and release of liability



**FAX TRANSMISSION**

Date: 12-27-01

ATTN: Paul Weise

Company: Terracon

From: CENTRAL SOILS REMEDIATION

Number of Pages (including cover): 3

Telephone (612-873-4374) if transmission not complete.

Fax: 612-873-6764

Message: Clean Analytical Report for project NO.  
41017023 5 drums from good year  
vacant lot in St. Louis Park  
Call if you have questions

*Gary Johnson*



**LABORATORIES, Inc.**  
 P.O. BOX 246, 1128 N. FRONT STREET  
 NEW ULM, MN 56073-0249  
 PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890



PRELIMINARY REPORT

GARY JOHNSON  
 CENTRAL SOIL REMEDIATION  
 951 PARK DRIVE  
 BELLE PLAINE MN 56011

Report Date:  
 Lab Number: 01-N5692  
 Work Order #: 22-0562  
 Account #: 002071  
 Sample Matrix: SOIL  
 Date Sampled: 12 Dec 01  
 Date Received: 13 Dec 01

Project Name: GOOD YEAR  
 Project Number: LOT 8313  
 Sample Description: SAMPLE 1

Temperature at Receipt: ON ICE

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Percent Moisture	2.56	%	N/A	WI LUST	14 Dec 01	MLS
Sample Concentration For GRO	< 3	ppm	3.0	GRO WILUST	17 Dec 01	KE

BTEX/GRO SURROGATE RECOVERY: 93 %  
 \* GRO reported on Dry basis.

PRELIMINARY REPORT: RESULTS ARE SUBJECT TO CHANGE PENDING FINAL APPROVAL OF DATA.

RL - Reporting Limit

Elevated "Less Than Result" (<): @ = Due to sample matrix # = Due to sample concentration  
 ! = Due to sample quantity + = Due to extract volume

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040 IA LAB #: 132

*feeswille*

MVTL guarantees the accuracy of the analyses done on the samples submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the results are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

## **METHODS**

### **Hollow Stem Auger Soil Sampling**

The soil borings were advanced using a 4¼-inch I.D. hollow stem auger. Soil sampling was done in accordance with ASTM D-1584. Using this procedure, a 2-inch O.D. split barrel sampler is driven into the soil by a 140 pound weight falling 30-inches. The number of blows required to advance the split barrel sampler the last 12-inches of a normal 18-inch penetration is recorded as the standard penetration resistance value, or N value. The N value is an index of relative density of cohesionless soil and the consistency of cohesive soil. The soil borings not completed as wells were abandoned using a bentonite grout.

### **Soil Sample Organic Vapor Screening**

Soil samples were screened for the presence of organic vapors using a photoionization detector. This device is calibrated to isobutylene and provides a direct reading in parts per million (ppm). Soil samples were collected upon retrieval of the split barrel sample from the borehole. The soil samples were placed in clean ziplock bags and sealed. The samples were allowed to stand for 15 minutes and warmed, if necessary, prior to inserting the probe and recording the organic vapor level

### **Soil Disposal**

Soil cuttings from the hollow stem auger drilling activities were containerized for off-site disposal at the Central Soils Remediation facility ins Belle Plaine, Minnesota.

### **Soil Classification**

As the samples were obtained in the field, they were classified by the field engineer in accordance with ASTM D-2487 based on visual observations, texture and plasticity. Boring logs indicating the depth and identification of the various strata, water level information, sample collection intervals, and field screening were completed on-site by the field engineer.

### **Temporary Monitoring Well Installation (PVC) and Abandonment**

Temporary monitoring wells were installed by placing a 10-foot length of 10-slot PVC screen with #30 red flint filterpack to 1 foot above the top of the screen (where possible). If necessary, riser pipe was installed to the ground surface. The riser piping was constructed of PVC materials. The remainder of the borehole remained open until the screen and riser was pulled and the boring abandoned. Prior to sampling each temporary monitoring well was developed to obtain as clear and sediment-free sample as was feasible. The temporary monitoring well was abandoned according to Minnesota Department of Health (MDH) guidelines.

## **Methods Continued**

### **Cleaning Procedures**

The downhole tools were cleaned using high pressure hot water wash prior to mobilization to the site and between borings. The split barrel sampler was washed with a tri-sodium phosphate solution and rinsed with potable water prior to collecting soil samples. The water level indicator was cleaned between wells using a potable water wash, a methanol wash, and a potable water rinse.

### **Quality Control/Quality Assurance**

A trip blank for VOCs, if analyzed, was submitted to the laboratory. Each sample container was labeled with the analysis, sample name, name of sampling personnel, time and date of collection, and the preservative (if any). Proper chain-of-custody records accompanied the samples. Samples were placed in coolers with ice and were then secured with shipping seals for transport to the laboratory.

### **Surveying**

Elevations of the top edge of the riser pipes on the monitoring wells were determined using an automatic level. A nearby control point with a known National Geodetic Vertical Datum (NGVD) elevation is located and used as the starting point in a level loop. The loop is run in such a way as to minimize the number of unconfirmed side shots. Typically the elevations of the top of the well risers are sighted at least twice. Acceptable closure criteria are based on the number of turning points in the level loop with consideration given to the ground water gradient across the site. Elevations of ground surfaces are considered accurate to the nearest 0.1 feet and elevations to the top of the riser pipe are considered accurate to the nearest 0.01 feet. Horizontal measurements to structures, wells, boring locations, or other significant features are determined using a 100 foot cloth tape. The measurements are made by referencing the parallel and perpendicular distances from the object to an established reference object nearby. Tape distances are recorded with a taut-line tape held perpendicular to the direction of gravity. In areas of extreme slope a plumb bob may be used to determine the direction of gravity.

## **GEOPROBE METHODS**

### **Ground Water Sampling-temporary wells**

Temporary monitoring wells were installed using a 5-foot length of 10-slot Schedule 40 PVC screen and 5-foot lengths of Schedule 40 PVC flush threaded riser pipe. Water levels were recorded using a water level indicator. If enough water was available the first liter collected was purged from the wells prior to collecting laboratory samples. Purging was performed using a peristaltic pump and disposable polyethylene tubing. The ground water was transferred directly from the tubing to the appropriate laboratory containers. Laboratory samples for volatile or semi-volatile organic compounds were collected from the tubing while the pump was turned off.

## **Methods Continued**

### **Ground Water Sampling Procedures-screen point sampler**

Ground water samples were collected using a 1-inch diameter, 4-foot stainless steel screen. The screen sampler was encased in steel and driven to the desired depth. The casing was then pulled up a distance of four feet to allow ground water to pass through the screen. If enough water was available the first liter collected was purged prior to collecting laboratory samples. Purging was performed using a peristaltic pump and disposable polyethylene tubing. The ground water was transferred directly from the tubing to the appropriate laboratory containers. Laboratory samples for volatile or semi-volatile organic compounds were collected from the tubing while the pump was turned off.

### **Soil Sampling Procedures-macro core sampler**

Soil samples were collected with a 2-inch diameter 4-foot sampler that attaches to the leading end of the probe rod. The sampler is comprised of a hollow steel cylinder with an acetate liner. Samples are collected in the liner continuously in four foot lengths. The samples are extruded and placed into laboratory prepared sample jars or other appropriate containers.

### **Soil Sampling Procedures-discrete sampler**

At depths greater than 12 to 16 feet discrete soil samples were collected using a 2-inch diameter 4-foot sampler that attaches to the leading end of the probe rod. The sampler is comprised of a hollow steel cylinder, a center piston, and an acetate liner. The sampler remains sealed until it is advanced to the desired sampling depth. The piston is retracted and the probe is advanced approximately four feet to recover a sample. The sample is extruded and placed into laboratory prepared sample jars or other appropriate containers.

### **Cleaning Procedures**

The downhole tools were cleaned using high pressure hot water wash prior to mobilization to the site and between borings. The samplers were washed with a tri-sodium phosphate solution and rinsed with potable water prior to collecting soil samples.

### **Soil Probe Abandonment**

The probe holes were abandoned using a bentonite grout mixture upon completion of sample collection.

### **Soil Disposal**

Soil cuttings from the drilling activities were left on-site.

## **Methods Continued**

### **Soil Classification**

As the samples were obtained in the field, they were classified by the field engineer in accordance with ASTM D-2487 based on visual observations, texture and plasticity. Boring logs indicating the depth and identification of the various strata, water level information, sample collection intervals, and field screening were completed on-site by the field engineer.

### **Soil Sample Organic Vapor Screening**

Soil samples were screened for the presence of organic vapors using a photoionization detector. This device is calibrated to isobutylene and provides a direct reading in parts per million (ppm). Soil samples were collected upon retrieval of the sample from the borehole. The soil samples were placed in clean ziplock bags and sealed. The samples were allowed to stand for 15 minutes and warmed, if necessary, prior to inserting the probe and recording the organic vapor level.

N:\01\01\_7023\023\_3\_24RI-LTR-METH.DOC

# LOG OF BORING NO. P-1

CLIENT <b>MPCA</b>									
SITE <b>HIGHWAY 7 AND LAKE STREET ST. LOUIS PARK, MINNESOTA</b>		PROJECT <b>VACANT PARKING LOT-MPCA</b>							
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES				TESTS	
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*
4	CLAYEY SAND (FILL), Dark Brown to Medium Brown	4	SC	1	MC	16			<1
8	CLAYEY SAND (FILL), Dark Brown to Medium Brown, with Gravel	5	SC	2	MC	16			<1
10	CLAYEY SAND, Dark Brown to Medium Brown, with Gravel to 9 feet, Red-Brown, Fine to Medium Grain Sand with Trace Gravel	10	SC	3	MC	18			<1
12	SAND, Red-Brown, Fine to Medium Grain with Trace Gravel	12	SC	4	MC	18			<1
14	SAND, Red-Brown, Fine to Coarse Grain with Trace Gravel	14	SP	5	MC	18			<1
16	SAND, Brown, Fine to Medium Grain with Gravel	16	SP	6	MC	18			<1
20	SAND, Brown, Medium to Coarse with Trace Gravel	20	SW	7	MC	18			<1
24	SAND, Brown, Medium to Coarse with Trace Gravel	24	SW	8	MC	18			<1
28	SAND, Brown, Medium to Coarse with Trace Gravel	28	SP	9	MC	18			<1
32	SAND, Brown, Medium to Coarse with Trace Gravel	30	SP	10	MC	18			<1
32	END OF BORING	30	SW	11	MC	18			<1
		32	SW	12	MC	18			<1
		32	SW	13	MC	8			1.2
		32	SW	14	MC	12			<1
		32	SW	15	MC	18			<1
		32	SW	16	MC	18			<1

BOREHOLE 99-41017023 GPJ ANNE GDT 6/26/01

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppmi).

WATER LEVEL OBSERVATIONS, ft	
WL	▽ 31
WL	▽
WL	▽



BORING STARTED		6-11-01	
BORING COMPLETED		6-11-01	
RIG	Geoprobe	FOREMAN	JMS
APPROVED	PJW	JOB #	41017023

# LOG OF BORING NO. P-2

CLIENT <b>MPCA</b>									
SITE <b>HIGHWAY 7 AND LAKE STREET ST. LOUIS PARK, MINNESOTA</b>		PROJECT <b>VACANT PARKING LOT-MPCA</b>							
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	SAMPLES				TESTS		
			USCS SYMBOL	NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*
2	CLAYEY SAND (FILL), Dark Brown, Medium Grain with Gravel	2	SC	1	MC	9		<1	
4	CLAYEY SAND (FILL), Dark Brown, Medium Grain with Gravel	4	SC	2	MC	9		<1	
6	SAND (FILL), Brown, Medium to Coarse Grain with Gravel	6	SW	3	MC	12		<1	
8	SAND (FILL), Brown-Red, Medium Grain with Gravel	8	SP	4	MC	12		<1	
16	SAND (FILL), Red-Brown, Medium Grain with Trace Gravel	16	SP	5	MC	12		<1	
22	SAND, Brown-Red, Medium Grain with Trace Gravel	22	SP	6	MC	12		<1	
28	SAND, Brown, Medium Grain with Gravel	28	SP	7	MC	18		<1	
32	SAND, Brown, Medium to Coarse Grain with Trace Gravel	32	SP	8	MC	18		<1	
32	END OF BORING	32	SP	9	MC	18		<1	
32	END OF BORING	32	SP	10	MC	18		<1	
32	END OF BORING	32	SP	11	MC	12		<1	
32	END OF BORING	32	SP	12	MC	12		<1	
32	END OF BORING	32	SP	13	MC	18		<1	
32	END OF BORING	32	SP	14	MC	18		<1	
32	END OF BORING	32	SP	15	MC	18		<1	
32	END OF BORING	32	SP	16	MC	18		<1	

BOREHOLE 99-41017023 GPJ ANNE GDT 6/26/01

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual. \* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppm).

WATER LEVEL OBSERVATIONS, ft	
WL $\nabla$ 31	$\nabla$
WL $\nabla$	$\nabla$
WL	



BORING STARTED		6-11-01	
BORING COMPLETED		6-11-01	
RIG	Geoprobe	FOREMAN	JMS
APPROVED	PJW	JOB #	41017023

# LOG OF BORING NO. P-3

CLIENT		MPCA							
SITE		HIGHWAY 7 AND LAKE STREET ST. LOUIS PARK, MINNESOTA							
		PROJECT							
		VACANT PARKING LOT-MPCA							
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	SAMPLES				TESTS		
			USCS SYMBOL	NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*
2	SILTY SAND (FILL), Asphalt to 6 inches, Brown, with Clay	2	SC	1	MC	18		4	
6	SILTY SAND (FILL), Brown, with Clay	6	SC	2	MC	18		3.8	
8	SILTY SAND (FILL), Brown, with Clay to 7 inches, Brown Medium Grain Sand	8	SP	3	MC	12		3.2	
10	SAND, Brown, Medium Grain	10	SP	4	MC	12		3.1	
12	SAND, Brown, Medium Grain to 11 inches, Gray Purple Sandstone	12	SP	5	MC	16		2.3	
14	GRAVELLY SAND, Medium Grain	14	SP	6	MC	16		2.3	
20	SAND, Brown, Medium Grain	20	SP	7	MC	18		1	
30	No Recovery	30	SP	8	MC	18		<1	
32	SAND, Brown, Medium Grain interbedded with Sandy Clay lenses END OF BORING	32	SP	9	MC	24		1.6	
		25	SP	10	MC	24		1.7	
		30	SP	11	-	NR		-	
		30		12	-	NR		-	
		30		13	-	NR		-	
		30		14	-	NR		-	
		30		15	-	NR		-	
		30		16	DS	12		3.1	

BOREHOLE 99 41017023 GPJ ANNE GDT 6/26/01

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppm).

WATER LEVEL OBSERVATIONS, ft	
WL	▽ 32
WL	▽
WL	▽



BORING STARTED		6-11-01	
BORING COMPLETED		6-11-01	
RIG	Geoprobe	FOREMAN	JMS
APPROVED	PJW	JOB #	41017023

# LOG OF BORING NO. P-7

CLIENT <b>MPCA</b>									
SITE <b>HIGHWAY 7 AND LAKE STREET ST. LOUIS PARK, MINNESOTA</b>		PROJECT <b>VACANT PARKING LOT-MPCA</b>							
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS		
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*
2	<u>SILTY SAND</u> , Brown, with trace Clay	2	SM	1	MC	18		2.1	
4	<u>SILTY SAND</u> , Light Brown, with trace Gravel	4	SM	2	MC	18		1.2	
10	<u>SAND</u> , Light Brown, Fine Grained	5	SP	3	MC	18		2.9	X
		6	SP	4	MC	18		1.2	
		7	SP	5	MC	18		6.4	
16	<u>SAND</u> , Light Brown, Fine Grained, with Gravel	10	SP	6	MC	18		2.9	
		11	SP	7	MC	18		2.1	
		12	SP	8	MC	18		2.9	
	<p>Note: Borehole collapsed at 16 feet. Screen point sampler advanced to 36 feet and groundwater sample was collected. Water sample had a sheen present and a hydrocarbon odor.</p> <p style="text-align: center;">BOTTOM OF BORING @36 FEET</p>								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppm).

**WATER LEVEL OBSERVATIONS, ft**

WL	▽ 30	▽
WL	▽	▽
WL		



BORING STARTED		11-28-01	
BORING COMPLETED		11-28-01	
RIG	GEOPROBE	FOREMAN	JMS
APPROVED	PJW	JOB #	41017023

BOREHOLE 99-41017023.GPJ ANNE.GDT 2/26/02

# LOG OF BORING NO. P-8

CLIENT <b>MPCA</b>	
SITE <b>HIGHWAY 7 AND LAKE STREET ST. LOUIS PARK, MINNESOTA</b>	PROJECT <b>VACANT PARKING LOT-MPCA</b>

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	SAMPLES				TESTS			
			USCS SYMBOL	NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*	SOIL SAMPLE SENT TO LABORATORY
6	<u>SILTY SAND</u> , Dark Brown, with Clay and trace Gravel	5	SM	1	MC	18		2.1		
		5	SM	2	MC	18		13.1		
		5	SM	3	MC	18		3.8		
	12	<u>SILTY SAND</u> , Light Brown, Fine Grained	10	SP	4	MC	18		2.1	X
			10	SP	5	MC	20		7.2	
			10	SP	6	MC	20		4.6	
	Note: Borehole collapsed at 12 feet. Screen point sampler advanced to 36 feet and groundwater sample was collected. Water sample had a hydrocarbon odor. <b>BOTTOM OF BORING @36 FEET</b>	15								
		20								
		25								
		30								
		35								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppmi).

**WATER LEVEL OBSERVATIONS, ft**

WL	▽	30.5	▽		▽
WL	▽		▽		▽
WL					



BORING STARTED	11-28-01
BORING COMPLETED	11-28-01
RIG GEOPROBE	FOREMAN JMS
APPROVED PJW	JOB # 41017023

BOREHOLE 99-41017023.GPJ ANNE GDT 2/26/02

# LOG OF BORING NO. P-9

CLIENT		MPCA						
SITE		HIGHWAY 7 AND LAKE STREET ST. LOUIS PARK, MINNESOTA		PROJECT				
		VACANT PARKING LOT-MPCA						
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS	
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %
2.5	<u>SILTY SAND (FILL)</u> , Brown, with trace Clay and Gravel	SM						
5	<u>SILTY SAND (FILL)</u> , Dark Brown, with trace Clay and Gravel	SM	1	SS	18		10.6	
10		SM						
12.5		SM	2	SS	18		67.6	
15	<u>SAND</u> , Light Brown, Fine to Medium Grained	SP	3	SS	18		20.8	
20		SP						
25		SP	4	SS	8		39.5	
30		SP						
32.5		SP	5	SS	20		16.5	
35	<u>SAND</u> , Green to Brown, Fine to Medium Grained	SP	6	SS	20		19.1	
35		SP	7	SS	22		84.7	X
<b>Continued Next Page</b>		35						

BOREHOLE 99 41017023 GPJ TERRACON GDT 1/8/02

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppmi).

WATER LEVEL OBSERVATIONS, ft			
WL	▽ 37	AD	▽ 36.31
WL	▽		▽
WL			



BORING STARTED		11-29-01	
BORING COMPLETED		11-29-01	
RIG	GEOPROBE	FOREMAN	JMS
APPROVED	PJW	JOB #	41017023

# LOG OF BORING NO. P-9

CLIENT <b>MPCA</b>									
SITE <b>HIGHWAY 7 AND LAKE STREET ST. LOUIS PARK, MINNESOTA</b>		PROJECT <b>VACANT PARKING LOT-MPCA</b>							
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS		
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*
47.5	SAND, Grayish Brown, Fine to Medium Grained <span style="float: right;">▼</span>	37	SP						
		40	SP	8	SS	20		339	
		45	SP						
		47.5	SP	9	SS	20		60.8	
		50	SW						
		50	SW	10	SS	6		9.7	
		55	SW						
		55	SW	11	SS	8		70.2	
	55	BOTTOM OF BORING							

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppmi).

WATER LEVEL OBSERVATIONS, ft			
WL	▽ 37	AD	▼ 36.31
WL	▽		▼
WL			



BORING STARTED		11-29-01	
BORING COMPLETED		11-29-01	
RIG	GEOPROBE	FOREMAN	JMS
APPROVED	PJW	JOB #	41017023

BOREHOLE 99 41017023 GPJ TERRACON GDT 1/8/02

# LOG OF WELL NO. P-10

CLIENT <b>MPCA</b>											
SITE <b>HIGHWAY 7 AND LAKE STREET ST. LOUIS PARK, MINNESOTA</b>		PROJECT <b>VACANT PARKING LOT-MPCA</b>									
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES				TESTS			
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*	SOIL SAMPLE SENT TO LABORATORY	
2.5	<u>SILTY SAND</u> , Brown, with Gravel and trace Clay	2.5	SM								
5	<u>SAND</u> , Brown, Medium to Fine Grained, with trace Gravel	5	SP	1	SS	18			5		
	<u>SAND</u> , Light Brown, Medium Grained, with Gravel		SP								
			SP	2	SS	18			59.1		
			SP								
			SP	3	SS	18			2.1		
			SP								
			SP	4	SS	20			2.9		
20	<u>SAND</u> , Light Brown, Fine to Medium Grained, with trace Gravel	20	SP								
			SP	5	SS	20			4.6		
			SP								
			SP	6	SS	20			8	X	
			SP								
			SP	7	SS	4			60.8		
35		35									

**Continued Next Page**

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppmi).

**WATER LEVEL OBSERVATIONS, ft**

WL	▽	AD	▽	37
WL	▽		▽	
WL				



BORING STARTED		11-29-01	
BORING COMPLETED		11-29-01	
RIG	GEOPROBE	FOREMAN	JMS
APPROVED	PJW	JOB #	41017023

BOREHOLE 99 41017023.GPJ TERRACON GDT 1/8/02

# LOG OF WELL NO. P-10

CLIENT <p style="text-align: center;"><b>MPCA</b></p>	
SITE HIGHWAY 7 AND LAKE STREET ST. LOUIS PARK, MINNESOTA	PROJECT <p style="text-align: center;"><b>VACANT PARKING LOT-MPCA</b></p>

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES				TESTS	
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	FIELD VAPOR TEST (PPM)*
37.5	<u>SAND</u> , Light Brown, Fine to Medium Grained, with trace Gravel, Wet ▼	37.5	SP						
	<u>SAND</u> , Grayish Brown, Fine to Medium Grained	40	SP	8	SS	10		643	
		45	SP	9	SS	10		19.9	
	BOTTOM OF BORING	45							

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual. \* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppmi).

WATER LEVEL OBSERVATIONS, ft		
WL ▼	AD ▼	37
WL ▼	▼	
WL		



BORING STARTED		11-29-01	
BORING COMPLETED		11-29-01	
RIG	GEOPROBE	FOREMAN	JMS
APPROVED	PJW	JOB #	41017023

BOREHOLE 99 41017023.GPJ TERRACON.GDT 1/8/02

MINNESOTA DEPARTMENT OF HEALTH  
**WELL AND BORING SEALING RECORD**  
 Minnesota Statutes, Chapter 1031

Minnesota Well and Boring Sealing No.  
 Minnesota Unique No. or W-series No.  
 (Leave blank if not known)

H 153591

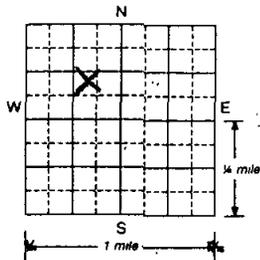
**WELL OR BORING LOCATION**

County Name **Hennepin**  
 Township Name **St. Louis Park** Township No **117N** Range No **21W** Section No. **17** Fraction (s.m. → lg) **SW SE 1/4 SE 1/4**  
 Date Sealed **6/11 + 12/01** Date Well or Boring Constructed **6/11 + 12/01**

Numerical Street Address or Fire Number and City of Well or Boring Location  
**7001 LAKE STREET WEST**

Show exact location of well or boring in section grid with "X"

Sketch map of well or boring location, showing property lines, roads, and buildings.



*Attached*

PROPERTY OWNER'S NAME  
**SPD Holdings LLC**

Property owner's mailing address if different than well location address indicated above

**7001 West Lake Street  
 St. Louis Park, MN 55426**

WELL OWNER'S NAME  
**MPCA - Kathryn Serice**

Well owner's mailing address if different than property owner's address indicated above

**520 Lafayette Rd. N.  
 St. Paul, MN 55155**

GEOLOGICAL MATERIAL	COLOR	HARDNESS OF FORMATION	FROM	TO
Clay/Sand-Fill	BRN	STIFF	0	10
SAND F-C	Red BRN	LOOSE	10	48

If not known, indicate estimated formation log from nearby well or boring.

GEOLOGICAL MATERIAL	COLOR	HARDNESS OF FORMATION	FROM	TO

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING  
**P-1 to P-6**

Depth Before Sealing **39** ft Original Depth **48** ft

AQUIFER(S)  
 Single Aquifer  Multiaquifer  
 WELL/BORING  
 Water Supply Well  Monit. Well  
 Env. Bore Hole  Other **Temp Well**

STATIC WATER LEVEL  
 Measured  Estimated  
**36** ft  below  above land surface

CASING TYPE(S)  
 Steel  Plastic  Tile  Other

CASING  
 Diameter **2** in from **0** to **48** ft. Set in oversize hole?  Yes  No Annual space initially grouted?  Yes  No  Unknown  
 \_\_\_\_\_ in from \_\_\_\_\_ to \_\_\_\_\_ ft.  Yes  No  Yes  No  Unknown  
 \_\_\_\_\_ in from \_\_\_\_\_ to \_\_\_\_\_ ft.  Yes  No  Yes  No  Unknown

SCREEN/OPEN HOLE  
 Screen from **48** to **48** ft Open Hole from \_\_\_\_\_ to \_\_\_\_\_ ft.

OBSTRUCTIONS  
 Rods/Drop Pipe  Check Valve(s)  Debris  Fill  No Obstruction  
 Type of Obstructions (Describe) \_\_\_\_\_  
 Obstructions removed?  Yes  No Describe \_\_\_\_\_

PUMP  
 Type \_\_\_\_\_  
 Removed  Not Present  Other \_\_\_\_\_

**METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:**

No Annular Space Exists  
 Annular space grouted with tremie pipe  
 Casing Perforation/Removal  
**2** in. from **0** to **48** ft.  Perforated  Removed  
 \_\_\_\_\_ in. from \_\_\_\_\_ to \_\_\_\_\_ ft.  Perforated  Removed  
 Type of perforator \_\_\_\_\_  
 Other \_\_\_\_\_

GROUTING MATERIAL(S)  
 Grouting Material  **Bentonite**  from **0** to **48** ft. **21** yards **21** bags  
 \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yards \_\_\_\_\_ bags  
 \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yards \_\_\_\_\_ bags  
 \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yards \_\_\_\_\_ bags

OTHER WELLS AND BORINGS  
 Other unsealed and unused well or boring on property?  Yes  No How many? \_\_\_\_\_

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION  
 This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.  
**Terracore** MO172  
 Contractor Business Name License or Registration No.  
**David Wolff** 7-17-01  
 Authorized Representative Signature Date  
**JADE SCHULTZ**  
 Name of Person Sealing Well or Boring

MINNESOTA DEPARTMENT OF HEALTH  
**WELL AND BORING SEALING RECORD**  
 Minnesota Statutes, Chapter 103I

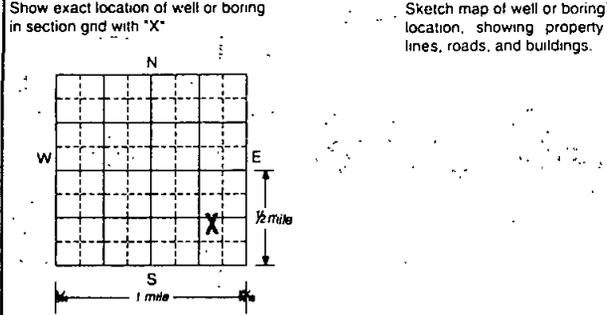
Minnesota Well and Boring Sealing No.  
 Minnesota Unique Well No. or W-series No.  
(Leave blank if not known)

H **186386**

WELL OR BORING LOCATION  
 County Name  
**HENNEPIN**

Township Name Township No. Range No. Section No. Fraction (sm → lg.) Date Sealed Date Well or Boring Constructed  
**117N 21W 17 NW 1/4 SE 1/4 SE 11-28-2001 11-28-2001**

Numerical Street Address or Fire Number and City of Well or Boring Location  
**7000 W. LAKE ST, ST LOUIS PARK**  
 Depth Before Sealing **55** ft Original Depth **55** ft



AQUIFER(S)  
 Single Aquifer  Multi-aquifer  
 WELL/BORING  
 Water Supply Well  Monit. Well  
 Env. Bore Hole  Other **TEMP WELL 31 ft**  below  above land surface

CASING TYPE(S)  
**N/A**  
 Steel  Plastic  Tile  Other

CASING(S)  
 Diameter Depth Set in oversize hole? Annular space initially grouted?  
 \_\_\_\_\_ in from \_\_\_\_\_ to \_\_\_\_\_ ft.  Yes  No  Yes  No  Unknown  
 \_\_\_\_\_ in from \_\_\_\_\_ to \_\_\_\_\_ ft.  Yes  No  Yes  No  Unknown  
 \_\_\_\_\_ in from \_\_\_\_\_ to \_\_\_\_\_ ft.  Yes  No  Yes  No  Unknown

PROPERTY OWNER'S NAME  
 Property owner's mailing address if different than well location address indicated above

SCREEN/OPEN HOLE  
 Screen from \_\_\_\_\_ to \_\_\_\_\_ ft. Open Hole from **0** to **55** ft

WELL OWNER'S NAME  
**MPCA**  
 Well owner's mailing address if different than property owner's address indicated above.  
**520 LAFAYETTE ROAD  
 ST PAUL MN 55155**

OBSTRUCTIONS  
 Rods/Drop Pipe  Check Valve(s)  Debris  Fill  No Obstruction  
 Type of Obstructions (Describe) \_\_\_\_\_  
 Obstructions removed?  Yes  No Describe \_\_\_\_\_

GEOLOGICAL MATERIAL	COLOR	HARDNESS OF FORMATION	FROM	TO
ASPHALT FILL	CLAY DK BRN		0	3
GRAVEL CLAY FILL	BLK MED		3	13
SAND GRAVEL	BRN	MED-F	13	18
SAND GRAVEL	BRN	SOFT	18	28
SAND GRAVEL	BRN	MED	28	33
SAND GRAVEL	BRN	HARD	33	38
WET SAND GRAVEL	GRAY	SOFT	38	43
WET SAND GRAVEL	GRN	SOFT	43	48
WET SAND GRAVEL	GRAY	SOFT	48	55

PUMP  
 Type **WELL HEAD CO**  
 Removed  Not Present  Other

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:  
 No Annular Space Exists  
 Annular space grouted with tremie pipe  
 Casing Perforation/Removal  
 \_\_\_\_\_ in. from \_\_\_\_\_ to \_\_\_\_\_ ft.  Perforated  Removed  
 \_\_\_\_\_ in. from \_\_\_\_\_ to \_\_\_\_\_ ft.  Perforated  Removed  
 Type of perforator \_\_\_\_\_  
 Other

GROUTING MATERIAL(S) (One bag of cement = 94 lbs., one bag of bentonite = 50 lbs.)  
 Grouting Material **NEAT CEMENT** from **0** to **55** ft. **21** yards **21** bags  
 \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yards \_\_\_\_\_ bags  
 \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yards \_\_\_\_\_ bags  
 \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yards \_\_\_\_\_ bags

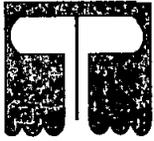
REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING:  
 terracon

OTHER WELLS AND BORINGS  
 Other unsealed and unused well or boring on property?  Yes  No. How many? \_\_\_\_\_  
 LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.  
**THEIN WELL CO** **34625**  
 Contractor Business Name License or Registration No.  
**1-8-2002**  
 Authorized Representative Signature Date  
**BRIAN HILBRANDS** **1-8-2002**

IMPORTANT-FILE WITH PROPERTY PAPERS-WELL OWNER COPY H **186386**

Name of Person Sealing Well or Boring: \_\_\_\_\_



# THEIN WELL CO.

WELLS ~ PUMPS  
SALES ~ SERVICE

P.O. BOX 429 • CLARA CITY, MN 56222  
(320) 847-3207 • 800-450-8000  
www.theinwell.com  
e-mail twell@hcinet.net

Since 1893

## TERRACON ENVIRONMENTAL ST LOUIS PARK PROJECT 11-28-2001

GEOLOGICAL/COLOR/FORMATION	FROM	TO	BLOW COUNTS
<u>P#7</u>			
SAND GRAVEL DK BRN MED	0	4	MACRO
SAND GRAVEL DK BRN MED	4	8	MACRO
SAND GRAVEL DK BRN BLK MED	8	12	MACRO
SAND GRAVEL DK BRN MED	12	16	MACRO
SAND GRAVEL BRN MED	16	17	MACRO
SCREEN POINT	0	36	WATER SAMPLE
<u>P#8</u>			
SAND GRAVEL FILL BLK MED	0	4	MACRO
SAND GRAVEL BRN MED	4	8	MACRO
SAND GRAVEL DK BRN MED	8	12	MACRO
SAND GRAVEL BRN MED	12	14	MACRO
SCREEN POINT	0	36	WATER SAMPLE
<u>P#9</u>			
ASPHALT FILL CLAY DK BRN BLK MED	0	3	
GRAVEL CLAY FILL BLK MED	3	5	6/6/7/8
GRAVEL CLAY FILL BLK MED	5	8	
GRAVEL CLAY FILL BLK HARD	8	10	10/10/10/11
GRAVEL CLAY FILL BLK HARD	10	13	
SAND GRAVEL BRN MED FINE SOFT	13	15	4/4/4/5
SAND GRAVEL BRN MED FINE SOFT	15	18	
SAND GRAVEL BRN SOFT	18	20	4/4/5/5
SAND GRAVEL BRN SOFT	20	23	
SAND GRAVEL BRN SOFT	23	25	5/5/5/6
SAND GRAVEL BRN SOFT	25	28	
SAND GRAVEL BRN MED	28	30	8/9/9/10
SAND GRAVEL BRN MED	30	33	
SAND GRAVEL GRN HARD	33	35	10/10/12/12
SAND GRAVEL GRN HARD	35	38	
WET SAND GRAVEL GRAY GRN SOFT	38	40	3/3/4/4

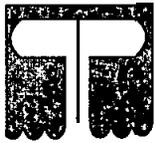
SPICER, MN 56288 (320) 796-2111 • ROCHESTER, MN 55901 (507) 288-5554 • MONTICELLO, MN 55362 (763) 271-4200

MEMBER  
NGWA

**CERTIFIED MASTER WATER WELL CONTRACTOR**

Equal Opportunity Employer

MEMBER  
AWWA



# THEIN WELL CO.

WELLS ~ PUMPS  
SALES ~ SERVICE

Since 1893

P.O. BOX 429 • CLARA CITY, MN 56222  
(320) 847-3207 • 800-450-8000  
www.theinwell.com  
e-mail twell@hcinet.net

P#9

WET SAND GRAVEL GRAY GRN SOFT	40	43	
WET SAND GRAVEL GRN SOFT	43	45	4/4/5/5
WET SAND GRAVEL GRN SOFT	45	48	
WET SAND GRAVEL GRAY SOFT	48	50	4/4/5/7
WET SAND GRAVEL GRAY SOFT	50	53	
WET SAND GRAVEL GRAY MED	53	55	7/10/12/12

P#10

ASPHALT SAND BRN MED FINE	0	3	
SAND COBBLES BRN MED FINE	3	5	5/5/5/6
SAND COBBLES BRN MED	5	8	
SAND COBBLES BRN SOFT	8	10	6/7/7/8
SAND COBBLES BRN SOFT	10	13	
SAND COBBLES BRN SOFT	13	15	6/6/7/7
SAND COBBLES BRN SOFT	15	18	
SAND COBBLES BRN SOFT	18	20	6/6/6/6
SAND COBBLES BRN MED	20	23	
SAND COBBLES BRN MED	23	25	7/7/8/8
SAND COBBLES BRN MED	25	28	
SAND COBBLES BRN HARD	28	30	7/10/10/12
SAND COBBLES BRN HARD	30	33	
SAND COBBLES BRN HARD	33	35	10/38/REFUSAL
SAND COBBLES BRN HARD	35	38	
WET SAND GRN GRAY SOFT	38	40	7/8/8/8
WET SAND GRN GRAY SOFT	40	43	
WET SAND GRAY SOFT	43	45	7/7/7/7

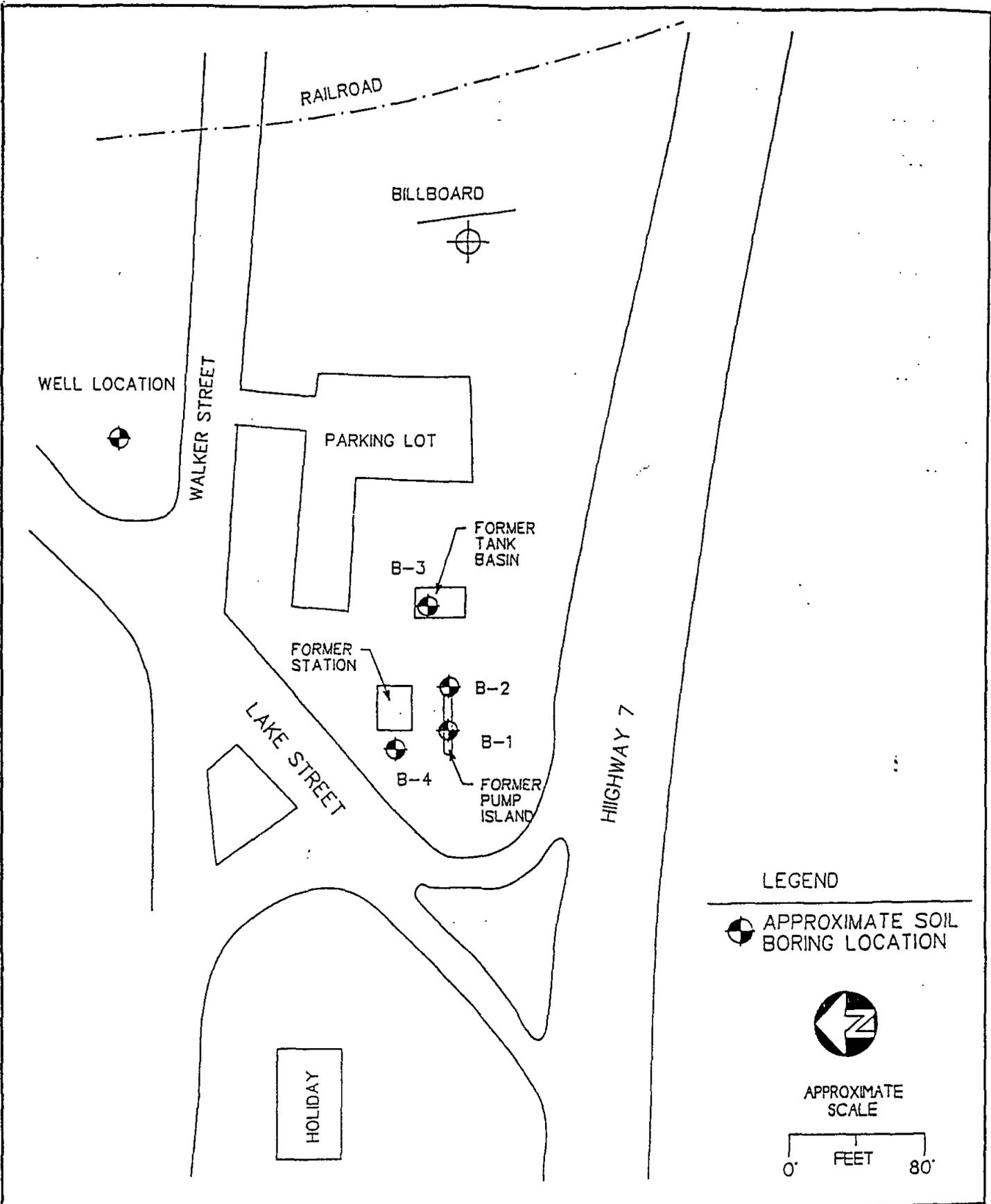
SPICER, MN 56288 (320) 796-2111 • ROCHESTER, MN 55901 (507) 288-5554 • MONTICELLO, MN 55362 (763) 271-4200

MEMBER  
NGWA

**CERTIFIED MASTER WATER WELL CONTRACTOR**

Equal Opportunity Employer

MEMBER  
AWWA



LEGEND

 APPROXIMATE SOIL BORING LOCATION



APPROXIMATE SCALE



GME CONSULTANTS, INC.

Geotechnical • Materials • Environmental  
 14000 21st Avenue N.  
 Minneapolis, Minnesota 55447  
 (612) 559-1859



FIGURE 2: PROPERTY DIAGRAM

LAKE STREET AND HIGHWAY 7  
 ST. LOUIS PARK, MINNESOTA

LOG OF BORING B- 1

PROJECT Phase II Environmental Drilling	SITE St. Louis Park, Minnesota
CLIENT	ARCHITECT-ENGINEER

DEPTH, FEET	SAMPLE NUMBER AND TYPE	WATER LEVEL	STRATA CHANGE, FEET	DESCRIPTION OF MATERIAL	PID Readings (ppm)	N-VALUE (BLOWS/FT.)	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>											
							1	2	3	4	5							
				SURFACE ELEVATION 914.3														
1	1SS		1.0	Dark brown to black SILTY CLAY WITH SAND, trace gravel - stiff - (CL) (FILL)	14	8												
5	2SS			Brown fine to medium SAND, trace gravel, silt - medium dense - damp - (SP)	17	29												
5	3SS		6.0		26	20												
8	4SS		8.0	Brown fine to coarse GRAVELLY SAND, trace silt - very dense - damp - (SP)	38	55												
10	5SS			Brown fine to medium SAND, trace gravel, silt - medium dense - damp - (SP)	29	29												
15	6SS		19.0		24	18												
20	7SS		21.0	Brown fine to coarse SAND WITH GRAVEL, trace silt - medium dense - damp - (SP)	24	18												
				End of boring at 21 feet Hollow stem auger used full depth Borehole backfilled with grout														

WATER LEVEL OBSERVATIONS	
W.L.	Groundwater not encountered while drilling or after casing removal
W.L.	removal
Boring caved at 8 feet after auger removal	

**GME CONSULTANTS, INC.**  
 Geotechnical · Materials · Environmental  
 14000 21st Avenue North  
 Minneapolis, Minnesota 55441  
 (612) 659-1869



BORING STARTED	4/7/95
BORING COMPLETED	4/7/95
RIG	CME-055
DRILLER	KJB
DRAWN	JLH
APPROVED	TFM
JOB #	5283
SHEET	1 of 1

The stratification lines represent approximate boundaries between soil types; insitu the transition may be gradual.

**LOG OF BORING B- 2**

PROJECT  
Phase II Environmental Drilling

SITE  
St. Louis Park, Minnesota

CLIENT

ARCHITECT-ENGINEER

DEPTH, FEET	SAMPLE NUMBER AND TYPE	WATER LEVEL	STRATA CHANGE, FEET	DESCRIPTION OF MATERIAL	PID Readings (ppm)	N-VALUE (BLOWS/FT.)	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>								
							1	2	3	4	5				
				SURFACE ELEVATION → 914.0											
	1SS		1.0	Brown and dark brown SILTY CLAY WITH SAND, trace gravel - (CL) (FILL)	7.2	30									
	2SS		2.5	Dark brown fine to medium SILTY SAND WITH GRAVEL - dense - damp - (SM)	8	17									
	3SS		5	Dark gray SILTY CLAY WITH SAND, trace gravel - (CL) (FILL)	9.9	15									
	4SS		8.0	Brown fine to medium SAND, trace gravel, silt - medium dense to loose - damp - (SP)	10.1	8									
	5SS		10	Brown fine to coarse SAND WITH GRAVEL, trace silt - very dense - damp - (SP)	10	52									
	6SS		14.0	Brown fine to medium SAND, trace gravel, silt - medium dense - damp - (SP)	4.2	10									
	7SS		21.0	Brown fine to medium SAND, trace gravel, silt - medium dense - damp - (SP)	7.2	15									
				End of boring at 21 feet Hollow stem auger used full depth Borehole backfilled with grout											

**WATER LEVEL OBSERVATIONS**

W.L. Groundwater not encountered  
W.L. while drilling or after casing  
W.L. removal



**GME CONSULTANTS, INC.**  
Geotechnical - Materials - Environmental  
14000 21st Avenue North  
Minneapolis, Minnesota 55441  
(612) 559-1859

BORING STARTED 4/7/95  
BORING COMPLETED 4/7/95  
RIG CME-D55 DRILLER KJB  
DRAWN JLH APPROVED TFM  
JOB # 5283 SHEET 1 of 1

Boring caved at 8.3 feet after auger removal

The stratification lines represent approximate boundaries between soil types; insitu the transition may be gradual.

# LOG OF BORING B-3

PROJECT  
Phase II Environmental Drilling

SITE  
St. Louis Park, Minnesota

CLIENT

ARCHITECT-ENGINEER

DEPTH, FEET	SAMPLE NUMBER AND TYPE	WATER LEVEL	STRATA CHANGE, FEET	DESCRIPTION OF MATERIAL	PID Readings (ppm)	N-VALUE (BLOWS/FT.)	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>								
							1	2	3	4	5				
				SURFACE ELEVATION → 916.2											
1.0	1SS		2.0	Dark brown SANDY CLAY WITH SILT, trace gravel - (CL) (FILL)	19	6									
2.0	2SS			Dark brown fine to coarse CLAYEY SAND, trace gravel - loose - damp - (SC)	12	50/0.3									
5.0	3SS			Brown fine to medium SAND WITH SILT, trace gravel - extremely dense to medium dense - damp - (SP)	10.1	10									
	4SS		8.0		8.6	9									
10.0	5SS			Light brown fine to medium SAND, trace gravel, silt - loose to very dense - damp - (SP)	10.5	8									
15.0	6SS														
20.0	7SS														
25.0	8SS														
30.0	9SS														
34.0															
35.0	10SS			Dark gray fine to coarse SAND WITH GRAVEL, trace silt - medium dense - moist to wet - (SP) - petroleum odor noted	459	18									
38.0				End of boring at 38 feet Hollow stem auger used full depth Borehole backfilled with grout											

**WATER LEVEL OBSERVATIONS**

W.L.  36 feet while drilling  
 W.L. \_\_\_\_\_  
 W.L. \_\_\_\_\_



**GME CONSULTANTS, INC.**  
 Geotechnical · Materials · Environmental  
 14000 21st Avenue North  
 Minneapolis, Minnesota 55441  
 (612) 669-1859

BORING STARTED	4/7/95		
BORING COMPLETED	4/7/95		
RIG	CME-D55	DRILLER	KJB
DRAWN	JLH	APPROVED	TFM
JOB #	5283	SHEET	1 of 1

The stratification lines represent approximate boundaries between soil types; insitu the transition may be gradual.

# LOG OF BORING B-4

PROJECT Phase II Environmental Drilling	SITE St. Louis Park, Minnesota
CLIENT	ARCHITECT-ENGINEER

DEPTH, FEET	SAMPLE NUMBER AND TYPE	WATER LEVEL	STRATA CHANGE, FEET	DESCRIPTION OF MATERIAL	PID Readings (ppm)	N-VALUE (BLOWS/FT.)	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>								
							1	2	3	4	5				
				SURFACE ELEVATION → 915.4			WATER CONTENT % STANDARD PENETRATION (BLOWS/FOOT)								
				No samples taken from 0 to 4 feet											
			4.0												
5	1SS			Brown fine to medium SAND, trace gravel, cobbles noted at 14 feet - loose to medium dense - damp - (SP)	20	17									
10	2SS				1	9									
15	3SS				NR	10									
20	4SS				1.0	17									
25	5SS				0	23									
30	6SS				0	25									
			34.0												
35	7SS	▽		Dark gray fine to coarse SAND WITH SILT, GRAVEL - medium dense - moist to wet - (SP-SM) - petroleum odor noted	229	27									
	8SS		38.0		492	20									
				End of boring at 38 feet Hollow stem auger used full depth Borehole backfilled with grout											

WATER LEVEL OBSERVATIONS			BORING STARTED 4/7/95	
W.L. <input checked="" type="checkbox"/> 36 feet while drilling			BORING COMPLETED 4/7/95	
W.L.			RIG CME-D55	DRILLER KJB
W.L.			DRAWN JLH	APPROVED TFM
		JOB # 5283 SHEET 1 of 1		
The stratification lines represent approximate boundaries between soil types; insitu the transition may be gradual.				

Unique No. 00216077	MINNESOTA DEPARTMENT OF HEALTH <b>WELL AND BORING RECORD</b> <i>Minnesota Statutes Chapter 1031</i>	Update Date 1991/09/11										
County Name Hennepin		Entry Date 1991/08/24										
Township Name Township Range Dir Section Subsection 117 21 W 17 DBBCDA	Well Depth ft.	Depth Completed ft.										
Well Name SITE EAST OF LOUISIANA E	Date Well Completed											
Contact's Name SITE EAST OF LOUISIANA E	Drilling Method	Drilling Fluid										
ST. LOUIS PARK MN	Use Domestic	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No Fro ft. to ft.										
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">GEOLOGICAL MATERIAL</td> <td style="width:20%;">COLOR</td> <td style="width:10%;">HARDNESS</td> <td style="width:10%;">FROM</td> <td style="width:10%;">TO</td> </tr> <tr> <td colspan="5">NO RECORD</td> </tr> </table>	GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	NO RECORD					Casing Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> N	Hole Diameter
	GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO							
	NO RECORD											
	Casing Diameter	Weight(lbs/ft)										
6 in. t	0 ft											
Screen Make	Open Hole From	ft. to ft.										
	Type											
Static Water Level 24 ft. from Land surface	Date 1956/01/00											
PUMPING LEVEL (below land surface)												
ft. after	hrs. pumping	g.p.m.										
Well Head Completion												
Pitless adapter mf	Model											
Casing Protection	<input type="checkbox"/> 12 in. above grade											
<input type="checkbox"/> At-grade(Environmental Wells and Borings ONLY)												
Grouting Information	Well grouted?	<input type="checkbox"/> Yes <input type="checkbox"/> No										
Nearest Known Source of Contamination												
ft.	direction	type										
Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No												
Pump <input type="checkbox"/> Not Installed	Date Installed											
Mfr nam	Mode	HP 0 Volts										
Drop Pipe Length ft.	Capacity	g.p.m										
Type												
Any not in use and not sealed well(s) on property? <input type="checkbox"/> Yes <input type="checkbox"/> No												
Was a variance granted from the MDH for this Well? <input type="checkbox"/> Yes <input type="checkbox"/> No												
Well CONTRACTOR CERTIFICATION Lic. Or Reg. No.												
License Business Name												
Name of Driller												
REMARKS, ELEVATION, SOURCE OF DATA, etc.												
U.S.G.S. W-59 NO WELL RECORD												
USGS Quad Minneapolis South	Elevation 899											
Aquifer:	Alt Id:											

**Report Copy**

Unique No. 00216068	MINNESOTA DEPARTMENT OF HEALTH <b>WELL AND BORING RECORD</b> <i>Minnesota Statutes Chapter 1031</i>	Update Date 1991/09/11
County Name Hennepin		Entry Date 1991/08/24
Township Name Township Range Dir Section Subsection 117 21 W 17 DCDADC	Well Depth ft.	Depth Completed ft. Date Well Completed 1937/00/00
Well Name PRESTOLITE	Drilling Method	
Contact's Name PRESTOLITE ST. LOUIS PARK MN	Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No Fro ft. to ft.
	Use Commercial	
	Casing Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> N	Hole Diameter
GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO NO RECORD		
	Screen Make	Open Hole From ft. to ft. Type
	Static Water Level ft. from	Date
	PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m.	
	Well Head Completion Pitless adapter mf Model Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)	
	Grouting Information Well grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Nearest Known Source of Contamination ft. direction type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Pump <input type="checkbox"/> Not Installed Date Installed Mfr nam Mode HP Volts Drop Pipe Length ft. Capacity g.p.m. Type	
REMARKS, ELEVATION, SOURCE OF DATA, etc.	Any not in use and not sealed well(s) on property? <input type="checkbox"/> Yes <input type="checkbox"/> No	
U.S.G.S. W-50 NO WELL RECORD	Was a variance granted from the MDH for this Well? <input type="checkbox"/> Yes <input type="checkbox"/> No	
USGS Quad Minneapolis South Elevation 890 Aquifer: Alt Id:	Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. License Business Name Name of Driller	

**Report Copy**

Unique No. 00216051

County Name Hennepin

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 1991/09/11

Entry Date 1991/08/24

Township Name Township Range Dir Section Subsection  
117 21 W 17 DDDCA

Well Depth Depth Completed Date Well Completed  
90 ft. 90 ft.

Well Name

Drilling Method

Contact's Name  
6425 OXFORD ST  
ST LOUIS PARK MN

Drilling Fluid Well Hydrofractured?  Yes  No  
Fro ft. to ft.

Use Domestic

Casing Drive Shoe?  Yes  N Hole Diameter

GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO

DRIFT 70

PLATTEVILLE LIMESTONE 70 90

Screen Open Hole From ft. to ft.  
Make Type

Static Water Level ft. from Date

PUMPING LEVEL (below land surface)  
ft. after hrs. pumping g.p.m.

Well Head Completion  
Pitless adapter mf Model  
Casing Protection  12 in. above grade  
 At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted?  Yes  No

Nearest Known Source of Contamination  
ft. direction type  
Well disinfected upon completion?  Yes  No

Pump  Not Installed Date Installed  
Mfr nam  
Mode HP Volts  
Drop Pipe Length ft. Capacity g.p.m.  
Type

Any not in use and not sealed well(s) on property?  Yes  No

Was a variance granted from the MDH for this Well?  Yes  No

REMARKS, ELEVATION, SOURCE OF DATA, etc.

CASING: 12 TO 65; 10 TO 257; 7 TO 373.

V.S.G.S. W-143

USGS Quad Minneapolis South Elevation 907  
Aquifer: OPVL Alt Id:

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No.  
License Business Name  
Name of Driller

Report Copy

Unique No. 00216056	MINNESOTA DEPARTMENT OF HEALTH <b>WELL AND BORING RECORD</b> <i>Minnesota Statutes Chapter 1031</i>	Update Date 1995/10/11
County Name Hennepin		Entry Date 1991/08/24
Township Name Township Range Dir Section Subsection 117 21 W 16 CBBCCA	Well Depth 342 ft.	Depth Completed 342 ft. Date Well Completed 1967/05/26
Well Name STERILIZED DIAPER SERVIC	Drilling Method	
Contact's Name STERILIZED DIAPER SERVIC 3455 DAKOTA AV ST. LOUIS PARK MN	Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No Fro ft. to ft.
	Use Industrial	
	Casing Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> N	Hole Diameter
<b>GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO</b>	Casing Diameter	Weight(lbs/ft)
SAND & GRAVEL 0 41	6 in. t 292 ft	
CLAY & GRAVEL LAYERS 41 60	8 in. t 291 ft	
SAND 60 64		
CLAY & SAND 64 93		
LIMEROCK 93 107	Screen N	Open Hole From 292 ft. to 342 ft.
SHALE 107 113	Make	Type
SHALE & SANDROCK 113 119		
SANDROCK 119 212	Static Water Level 105 ft. from Land surface	Date 1967/05/26
SHALE GREE 212 215	<b>PUMPING LEVEL (below land surface)</b>	
SHALE RED 215 227	120 ft. after	hrs. pumping 400 g.p.m.
SANDROCK & SHALE HARD 227 280	<b>Well Head Completion</b>	
LIMEROCK 280 342	Pitless adapter mf	Model
	Casing Protection	<input type="checkbox"/> 12 in above grade
	<input type="checkbox"/> At-grade(Environmental Wells and Borings ONLY)	
	<b>Grouting Information</b>	Well grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No
	<b>Nearest Known Source of Contamination</b>	
	ft. direction	type
	Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	<b>Pump</b> <input type="checkbox"/> Not Installed	Date Installed Y
	Mfr nam	
	Mode	HP 7.5 Volts
	Drop Pipe Length ft.	Capacity g.p.m
	Type S	
<b>REMARKS, ELEVATION, SOURCE OF DATA, etc.</b>	Any not in use and not sealed well(s) on property? <input type="checkbox"/> Yes <input type="checkbox"/> No	
CASING: 006 TO 0292;008 TO 0291.	Was a variance granted from the MDH for this Well? <input type="checkbox"/> Yes <input type="checkbox"/> No	
USGS Quad Minneapolis South Elevation 923	<b>Well CONTRACTOR CERTIFICATION</b> Lic. Or Reg. No. 27058	
Aquifer: OPDC Alt Id: 66	License Business Name	Bergerson-caswell
	Name of Driller	

**Report Copy**

Unique No. 00200993

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING RECORD

Update Date 1991/09/11

County Name Hennepin

Minnesota Statutes Chapter 1031

Entry Date 1991/08/24

Township Name Township Range Dir Section Subsection  
117 21 W 17 CAADA

Well Depth Depth Completed Date Well Completed  
91 ft. 91 ft. 1947/12/00

Well Name REPUBLIC CREOSOTE CO.

Drilling Method

Contact's Name REPUBLIC CREOSOTE CO.  
WALKER ST  
ST. LOUIS PARK MN

Drilling Fluid Well Hydrofractured?  Yes  No  
Fro ft. to ft.

Use Industrial

Casing Drive Shoe?  Yes  N Hole Diameter

GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO

Casing Diameter Weight(lbs/ft)

SAND FILL RED 7

4 in. t 71 ft

PEAT DARK 7 15

CLAY GRAY 15 35

SAND RED 35 65

BROKEN LIMEROCK 65 71

LIMESTONE 71 91

SANDSTONE WHITE 91 91

Screen N Open Hole From 71 ft. to 91 ft.  
Make Type

Static Water Level 6 ft. from Land surface Date 1947/12/00

PUMPING LEVEL (below land surface)  
6 ft. after hrs. pumping 60 g.p.m.

Well Head Completion  
Pitless adapter mf Model  
Casing Protection  12 in. above grade  
 At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted?  Yes  No

Nearest Known Source of Contamination  
ft. direction type  
Well disinfected upon completion?  Yes  No

Pump  Not Installed Date Installed Y  
Mfr nam MYERS  
Mode HP 0.75 Volts  
Drop Pipe Length ft. Capacity 15 g.p.m  
Type J

Any not in use and not sealed well(s) on property?  Yes  No

Was a variance granted from the MDH for this Well?  Yes  No

USGS Quad Minneapolis South Elevation 895  
Aquifer: MTPL Alt Id:

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27015  
License Business Name Renner E.h. & Sons  
Name of Driller

Report Copy

Unique No. 00206449

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING RECORD

Update Date 1991/09/11

County Name Hennepin

Minnesota Statutes Chapter 1031.

Entry Date 1991/08/24

Township Name Township Range Dir Section Subsection  
117 21 W 17 DDBDCB

Well Depth Depth Completed Date Well Completed  
182 ft. 182 ft. 1953/06/30

Well Name ROBINSON RUBBER CO.

Drilling Method

Contact's Name ROBINSON RUBBER CO.  
3629 LAKEST. W. & HY. 7 S  
ST LOUIS PARK MN

Drilling Fluid Well Hydrofractured?  Yes  No  
Fro ft. to ft.

Use Industrial

Casing Drive Shoe?  Yes  N Hole Diameter

GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO

Casing Diameter Weight(lbs/ft)

BOULDERS 14

8 in. t 0 ft

SAND + GRAVEL 14 80

PLATTEVILLE 80 100

SHALE 100 102

ST. PETER 102 182

Screen Open Hole From ft. to ft.

Make Type

Static Water Level 20 ft. from Land surface Date 1953/06/30

PUMPING LEVEL (below land surface)  
ft. after hrs. pumping g.p.m.

Well Head Completion  
Pitless adapter mf Model  
Casing Protection  12 in. above grade  
 At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted?  Yes  No

Nearest Known Source of Contamination  
ft. direction type  
Well disinfected upon completion?  Yes  No

Pump  Not Installed Date Installed  
Mfr nam  
Mode HP 0 Volts  
Drop Pipe Length ft. Capacity g.p.m.  
Type

Any not in use and not sealed well(s) on property?  Yes  No

Was a variance granted from the MDH for this Well?  Yes  No

USGS Quad Minneapolis South Elevation 905  
Aquifer: Alt Id:

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27246  
License Business Name Renner Max Well Co  
Name of Driller

Report Copy

Unique No. 00209344

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING RECORD

Update Date 1991/09/11

County Name Hennepin

Minnesota Statutes Chapter 1031

Entry Date 1991/08/24

Township Name Township Range Dir Section Subsection  
117 21 W 17 CDAABA

Well Depth Depth Completed Date Well Completed  
90 ft. 90 ft. 1952/08/11

Well Name LAKELAND DOOR CO.

Drilling Method

Contact's Name LAKELAND DOOR CO.  
3715 OREGAN AV  
ST. LOUIS PARK MN

Drilling Fluid Well Hydrofractured?  Yes  No  
Fro ft. to ft.

Use Commercial

Casing Drive Shoe?  Yes  N Hole Diameter

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
CLAY	BROW			4
GRAVEL	BLACK		4	48
GRAVEL	BROW		48	59
LIMEROCK	BLACK		59	90

Casing Diameter Weight(lbs/ft)  
4 in. t 76 ft

Screen Open Hole From ft. to ft.  
Make Type

Static Water Level 4 ft. from Land surface Date 1952/08/11

PUMPING LEVEL (below land surface)  
5 ft. after hrs. pumping 20 g.p.m.

Well Head Completion  
Pitless adapter mf Model  
Casing Protection  12 in. above grade  
 At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted?  Yes  No

Nearest Known Source of Contamination  
ft. direction type

Well disinfected upon completion?  Yes  No

Pump  Not Installed Date Installed Y  
Mfr nam MCDONALD  
Mode HP 0.5 Volts  
Drop Pipe Length 18 ft. Capacity g.p.m.  
Type

Any not in use and not sealed well(s) on property?  Yes  No

Was a variance granted from the MDH for this Well?  Yes  No

USGS Quad Minneapolis South Elevation 891  
Aquifer: OPVL Alt Id:

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27015  
License Business Name Renner E.h. & Sons  
Name of Driller

Report Copy

Unique No. 00216052	MINNESOTA DEPARTMENT OF HEALTH <b>WELL AND BORING RECORD</b> <i>Minnesota Statutes Chapter 1031</i>	Update Date 1991/09/11																																			
County Name Hennepin		Entry Date 1991/08/24																																			
Township Name Township Range Dir Section Subsection 117 21 W 17 DBCACB	Well Depth 112 ft.	Depth Completed 112 ft. Date Well Completed 1953/07/03																																			
Well Name BILL TERRY EXCAVATING CO	Drilling Method																																				
Contact's Name BILL TERRY EXCAVATING CO	Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No																																			
ST LOUIS PARK MN		Fro ft. to ft.																																			
	Use Domestic																																				
	Casing Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> N	Hole Diameter																																			
	Casing Diameter	Weight(lbs/ft)																																			
	4 in. t 81 ft																																				
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>GEOLOGICAL MATERIAL</th> <th>COLOR</th> <th>HARDNESS</th> <th>FROM</th> <th>TO</th> </tr> </thead> <tbody> <tr> <td>GRAVEL</td> <td></td> <td></td> <td></td> <td>38</td> </tr> <tr> <td>SAND</td> <td>GRAY</td> <td></td> <td>38</td> <td>63</td> </tr> <tr> <td>SAND &amp; CLAY &amp; STONES</td> <td></td> <td></td> <td>63</td> <td>68</td> </tr> <tr> <td>GRAVEL</td> <td></td> <td></td> <td>68</td> <td>80</td> </tr> <tr> <td>PLATTEVILLE LIMESTONE</td> <td>GRAY</td> <td></td> <td>80</td> <td>100</td> </tr> <tr> <td>ST. PETER SANDSTONE</td> <td>BLUE</td> <td></td> <td>100</td> <td>112</td> </tr> </tbody> </table>	GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	GRAVEL				38	SAND	GRAY		38	63	SAND & CLAY & STONES			63	68	GRAVEL			68	80	PLATTEVILLE LIMESTONE	GRAY		80	100	ST. PETER SANDSTONE	BLUE		100	112	Screen N	Open Hole From 81 ft. to 112 ft.
GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO																																	
GRAVEL				38																																	
SAND	GRAY		38	63																																	
SAND & CLAY & STONES			63	68																																	
GRAVEL			68	80																																	
PLATTEVILLE LIMESTONE	GRAY		80	100																																	
ST. PETER SANDSTONE	BLUE		100	112																																	
	Make	Type																																			
	Static Water Level 30 ft. from Land surface	Date 1953/07/03																																			
	PUMPING LEVEL (below land surface)																																				
	32 ft. after	hrs. pumping 0 g.p.m.																																			
	Well Head Completion																																				
	Pitless adapter mf	Model																																			
	Casing Protection	<input type="checkbox"/> 12 in. above grade																																			
	<input type="checkbox"/> At-grade(Environmental Wells and Borings ONLY)																																				
	Grouting Information	Well grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No																																			
	Nearest Known Source of Contamination																																				
	ft.	direction type																																			
	Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No																																				
	Pump <input type="checkbox"/> Not Installed	Date Installed																																			
	Mfr nam																																				
	Mode	HP 0 Volts																																			
	Drop Pipe Length ft.	Capacity g.p.m																																			
	Type																																				
	Any not in use and not sealed well(s) on property? <input type="checkbox"/> Yes <input type="checkbox"/> No																																				
	Was a variance granted from the MDH for this Well? <input type="checkbox"/> Yes <input type="checkbox"/> No																																				
USGS Quad Minneapolis South Elevation 903	Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27015																																				
Aquifer: MTP-L Alt Id:	License Business Name Renner E.h. & Sons																																				
	Name of Driller																																				

**Report Copy**

Township Name Township Range Dir Section Subsection 117 21 W 17 DBACDC	Well Depth 116 ft.	Depth Completed 116 ft.	Date Well Completed 1987/12/07
---	--------------------	-------------------------	--------------------------------

Well Name ST. LOUIS PARK B-D	Drilling Method Cable Tool
Contact's Name ST. LOUIS PARK B-D	Drilling Fluid
ST. LOUIS PARK MN 55416	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No Fro ft. to ft.

	Use Monitor well
	Casing Drive Shoe? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> N Hole Diameter

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	
SAND GRAVEL ROCKS	BROW		0	33	
SAND GRAVEL	GRAY		33	35	
SAND GRAVEL FINE	GRAY		35	50	
HARDPAN	GRAY		50	93	
PLATTEVILLE BROKEN	GRAY		93	99	
PLATTEVILLE TIGHT	GRAY	HARD	99	116	
GLENWOOD	BLU-G		116	116	

	Casing Diameter	Weight(lbs/ft)
	8 in. t 4 ft	
	4 in. t 99 ft	
Screen N	Open Hole From 99 ft. to 116 ft.	
Make	Type	

Static Water Level 35 ft. from Land surface	Date 1987/12/07
---	-----------------

PUMPING LEVEL (below land surface)		
100 ft. after	hrs. pumping	10 g.p.m.

Well Head Completion	
Pitless adapter mf	Model
Casing Protection	<input type="checkbox"/> 12 in. above grade
<input type="checkbox"/> At-grade(Environmental Wells and Borings ONLY)	

Grouting Information	Well grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Material	From To (ft.) Amount(yds/bags)
G	0 0 2 S

Nearest Known Source of Contamination			
55 ft.	direction S	type	SDF
Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No			

Pump <input checked="" type="checkbox"/> Not installed	Date Installed N
Mfr nam	
Mode	HP 0 Volts
Drop Pipe Length ft.	Capacity g.p.m.
Type	

REMARKS, ELEVATION, SOURCE OF DATA, etc.	Any not in use and not sealed well(s) on property? <input type="checkbox"/> Yes <input type="checkbox"/> No
M.G.S. NO.2670. 100 BLOCK OF GORHAM AVE.	Was a variance granted from the MDH for this Well? <input type="checkbox"/> Yes <input type="checkbox"/> No

USGS Quad Minneapolis South	Elevation 923	
Aquifer: OPVL	Alt Id:	
Well CONTRACTOR CERTIFICATION		Lic. Or Reg. No. 71015
License Business Name		Renner E.h. Well
Name of Driller		

**Report Copy**

Unique No. 00216079	MINNESOTA DEPARTMENT OF HEALTH <b>WELL AND BORING RECORD</b> <i>Minnesota Statutes Chapter 1031</i>	Update Date 1991/09/11
County Name Hennepin		Entry Date 1991/08/24
Township Name Township Range Dir Section Subsection 117 21 W 17 DDDDDC	Well Depth 112 ft. Depth Completed 112 ft. Date Well Completed 1953/07/03	
Well Name WILLIAM V. TERRY	Drilling Method	
Contact's Name WILLIAM V. TERRY  ST. LOUIS PARK MN	Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No Fro ft. to ft.
	Use Commercial	
	Casing Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> N	Hole Diameter
<b>GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO</b>	Casing Diameter	Weight(lbs/ft)
DRIFT 80	4 in. t 81 ft	
PLATTEVILLE LIMESTONE 80 100		
ST. PETER SANDSTONE 100 112		
	Screen N	Open Hole From 81 ft. to 112 ft.
	Make	Type
	Static Water Level ft. from	Date
	<b>PUMPING LEVEL (below land surface)</b>	
	ft. after	hrs. pumping g.p.m.
	<b>Well Head Completion</b>	
	Pitless adapter mf	Model
	Casing Protection	<input type="checkbox"/> 12 in. above grade
	<input type="checkbox"/> At-grade(Environmental Wells and Borings ONLY)	
	<b>Grouting Information</b>	Well grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No
	<b>Nearest Known Source of Contamination</b>	
	ft. direction	type
	Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Pump <input type="checkbox"/> Not Installed	Date Installed
	Mfr nam	
	Mode	HP g Volts
	Drop Pipe Length ft.	Capacity g.p.m
	Type	
<b>REMARKS, ELEVATION, SOURCE OF DATA, etc.</b>	Any not in use and not sealed well(s) on property? <input type="checkbox"/> Yes <input type="checkbox"/> No	
U.S.G.S. W-61 SAME AS W-27 NO. 216052	Was a variance granted from the MDH for this Well? <input type="checkbox"/> Yes <input type="checkbox"/> No	
USGS Quad Minneapolis South Elevation 905	<b>Well CONTRACTOR CERTIFICATION</b> Lic. Or Reg. No. <u>02701</u>	
Aquifer: MTPL Alt Id:	License Business Name	
	Name of Driller	

**Report Copy**

Unique No. 00206451

County Name Hennepin

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 1991/09/11

Entry Date 1991/08/24

Township Name Township Range Dir Section Subsection  
117 21 W 17 DDDDC

Well Depth Depth Completed Date Well Completed  
109 ft. 109 ft. 1958/09/23

Well Name PAUL STROM BLOCK CO.

Drilling Method

Contact's Name PAUL STROM BLOCK CO.  
6425 GOODRICH AV  
ST. LOUIS PARK MN

Drilling Fluid Well Hydrofractured?  Yes  No  
Fro ft. to ft.

Use Industrial

Casing Drive Shoe?  Yes  N Hole Diameter

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
DRY GRAVEL	BROW			32
SANDY CLAY	GRAY		32	68
CEMENTED SAND	GRAY		68	77
LIMESTONE	GRAY		77	93
SHALE	BLUE		93	95
SANDSTONE	WHITE		95	109

Casing Diameter Weight(lbs/ft)  
4 in. t 77 ft

Screen N Open Hole From 77 ft. to 109 ft.  
Make Type

Static Water Level 21 ft. from Land surface Date 1958/09/23

PUMPING LEVEL (below land surface)  
22 ft. after hrs. pumping 15 g.p.m.

Well Head Completion  
Pitless adapter mf Model  
Casing Protection  12 in. above grade  
 At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted?  Yes  No

Nearest Known Source of Contamination  
ft. direction type  
Well disinfected upon completion?  Yes  No

Pump  Not Installed Date Installed  
Mfr nam  
Mode HP 0 Volts  
Drop Pipe Length ft. Capacity g.p.m.  
Type

Any not in use and not sealed well(s) on property?  Yes  No

Was a variance granted from the MDH for this Well?  Yes  No

USGS Quad Minneapolis South Elevation 904  
Aquifer: MTPL Alt Id:

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27015  
License Business Name Renner E.h. & Sons  
Name of Driller

Report Copy

Unique No. 00216060	MINNESOTA DEPARTMENT OF HEALTH <b>WELL AND BORING RECORD</b> <i>Minnesota Statutes Chapter 1031</i>	Update Date 1992/03/25
County Name Hennepin		Entry Date 1991/08/24
Township Name Township Range Dir Section Subsection 117 21 W 16 CDBBBD	Well Depth 1002 ft. Depth Completed 1002 ft. Date Well Completed 19/13/05	
Well Name C.M.ST.P. AND P. R.R.	Drilling Method Cable Tool	
Contact's Name C.M.ST.P. AND P. R.R. WOODDALE AV + S SIDE LM ST. LOUIS PARK MN	Drilling Fluid _____ Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No Fro _____ ft. to _____ ft.	
	Use Commercial	
	Casing Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> N Hole Diameter _____	
	Casing Diameter _____ Weight(lbs/ft) _____	
	Screen N _____ Open Hole From 111 ft. to 1002 ft. Make _____ Type _____	
	Static Water Level 160 ft. from Land surface Date 1988/09/20	
	PUMPING LEVEL (below land surface) ft. after _____ hrs. pumping _____ g.p.m.	
	Well Head Completion Pitless adapter mf _____ Model _____ Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade(Environmental Wells and Borings ONLY)	
	Grouting Information Well grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Nearest Known Source of Contamination ft. direction _____ type _____ Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Pump <input type="checkbox"/> Not Installed Date Installed _____ Mfr nam _____ Mode _____ HP 0 Volts Drop Pipe Length _____ ft. Capacity _____ g.p.m. Type _____	
	Any not in use and not sealed well(s) on property? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Was a variance granted from the MDH for this Well? <input type="checkbox"/> Yes <input type="checkbox"/> No	
REMARKS, ELEVATION, SOURCE OF DATA, etc. M.P. -6.45 KEN MARSH 920-2880 OSP + CMS WELL WAS RECONSTRUCTED 4 IN. CASING TO 651 FT. USGS Quad Minneapolis South Elevation 914 Aquifer: MTPL Alt Id:	Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. License Business Name Name of Driller	

**Report Copy**

Unique No. 00206450	MINNESOTA DEPARTMENT OF HEALTH <b>WELL AND BORING RECORD</b> <i>Minnesota Statutes Chapter 1031</i>	Update Date 1991/09/11
County Name Hennepin		Entry Date 1991/08/24
Township Name Township Range Dir Section Subsection 117 21 W 20 AAAABC	Well Depth 384 ft. Depth Completed 384 ft. Date Well Completed 1958/08/12	
Well Name PAUL SROM BLOCK CO	Drilling Method	
Contact's Name PAUL SROM BLOCK CO 6425 GOODRICH AV ST LOUIS PARK MN	Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No Fro ft. to ft.
	Use Industrial	
	Casing Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> N Hole Diameter	
<b>GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO</b>	Casing Diameter Weight(lbs/ft)	
GRAVEL BROW 45	8 in. t 77 ft	
BOULDERS + GRAVEL BROW 45 47	6 in. t 241 ft	
CLAY + STONES BLU-B 47 72		
LIMESTONE BLUE 72 92		
SHALE WHT-G 92 96	Screen Open Hole From ft. to ft.	
SANDROCK WHITE 96 180	Make Type	
SANDROCK WHITE SOFT 180 202		
SHALE YELLO 202 241		
SANDROCK GRAY 241 260	Static Water Level 65 ft. from Land surface Date 1958/08/12	
SHALE + DOLOMITE PINK 260 380	<b>PUMPING LEVEL (below land surface)</b> 75 ft. after hrs. pumping 100 g.p.m.	
SHALE WHITE 380 381	<b>Well Head Completion</b> Pitless adapter mf Model Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade(Environmental Wells and Borings ONLY)	
SANDSTONE WHITE 381 384	<b>Grouting Information</b> Well grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	<b>Nearest Known Source of Contamination</b> ft. direction type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	<b>Pump</b> <input type="checkbox"/> Not Installed Date Installed Y Mfr nam DEMING Mode HP 3 Volts Drop Pipe Length ft. Capacity 40 g.p.m. Type T	
<b>REMARKS, ELEVATION, SOURCE OF DATA, etc.</b> CASING: 008 TO 0077;006 TO 0241.	Any not in use and not sealed well(s) on property? <input type="checkbox"/> Yes <input type="checkbox"/> No	
USGS Quad Minneapolis South Elevation 900 Aquifer: MTPL Alt Id:	Was a variance granted from the MDH for this Well? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	<b>Well CONTRACTOR CERTIFICATION</b> Lic. Or Reg. No. 27015 License Business Name Renner E.h. & Sons Name of Driller	

**Report Copy**

Unique No. 00206450	MINNESOTA DEPARTMENT OF HEALTH						Update Date 1991/09/11	
County Name Hennepin	<b>WELL AND BORING RECORD</b>						Entry Date 1991/08/24	
							Minnesota Statutes Chapter 1031	
Township Name	Township	Range	Dir	Section	Subsection	Well Depth	Depth Completed	Date Well Completed
	117	21	W	20	AAAABC	384 ft.	384 ft.	1958/08/12
Well Name	PAUL SROM BLOCK CO			Lic. Or	Reg. No.	27015	Name of Driller	
USGS Quad	Minneapolis	Elevation	900	Aquifer	MTPL	Alternative Id		

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	STRAT	LITH PRIM	LITH SEC	LITH MINOR
GRAVEL	BROWN		45		QFUB	GRVL		
	GRVL = Gravel							
BOULDERS + GRAVEL	BROWN		45	47	QFUB	BLDR	GRVL	
	BLDR = Boulder						GRVL = Gravel	
CLAY + STONES	BLU-BRN		47	72	QTUU	CLAY	COBL	
	CLAY = Clay						COBL = Cobble	
LIMESTONE	BLUE		72	92	OPVL	LMSN		
OPVL = Platteville	LMSN = Limestone							
SHALE	WHT-GRN		92	96	OGWD	SHLE		
OGWD = Glenwood	SHLE = Shale							
SANDROCK	WHITE		96	180	OSTP	SNDS		
OSTP = St.Peter	SNDS = Sandstone							
SANDROCK	WHITE	SOFT	180	202	OSTP	SNDS		
OSTP = St.Peter	SNDS = Sandstone							
SHALE	YELLOW		202	241	OSTP	SHLE	SLSN	
OSTP = St.Peter	SHLE = Shale						SLSN = Siltstone	
SANDROCK	GRAY		241	260	OSTP	SNDS		
OSTP = St.Peter	SNDS = Sandstone							
SHALE + DOLOMITE	PINK		260	380	OPDC	DLMT	SHLE	
OPDC = Prairie Du Chien Group	DLMT = Dolomite						SHLE = Shale	
SHALE	WHITE		380	381	OPDC	SLSN		
OPDC = Prairie Du Chien Group	SLSN = Siltstone							
SANDSTONE	WHITE		381	384	CJDN	SNDS		
CJDN = Jordan	SNDS = Sandstone							

Unique No. 00218162

MINNESOTA DEPARTMENT OF HEALTH  
**WELL AND BORING RECORD**

Update Date 1991/09/11

County Name Hennepin

Minnesota Statutes Chapter 1031

Entry Date 1991/08/24

Township Name Township Range Dir Section Subsection  
117 21 W 20 AAACBC

Well Depth Depth Completed Date Well Completed  
190 ft. 190 ft. 1966/02/16

Well Name ECHO PLASTICS

Drilling Method

Contact's Name ECHO PLASTICS  
6514 CONBRIDGE  
ST. LOUIS PARK MN

Drilling Fluid Well Hydrofractured?  Yes  No  
Fro ft. to ft.

Use Industrial

Casing Drive Shoe?  Yes  N Hole Diameter

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
NO RECORD	BROW		70	
LIMEROCK	WHITE		70	85
SANDROCK	WHITE		85	190

Casing Diameter Weight(lbs/ft)  
6 in. t 76 ft

Screen N Open Hole From 76 ft. to 190 ft.  
Make Type

Static Water Level 30 ft. from Land surface Date 1966/02/16

PUMPING LEVEL (below land surface):  
30 ft. after hrs. pumping 35 g.p.m.

Well Head Completion  
Pitless adapter mf Model  
Casing Protection  12 in. above grade  
 At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted?  Yes  No

Nearest Known Source of Contamination  
ft. direction type  
Well disinfected upon completion?  Yes  No

Pump  Not Installed Date Installed  
Mfr nam  
Mode HP 0 Volts  
Drop Pipe Length ft. Capacity g.p.m  
Type

Any not in use and not sealed well(s) on property?  Yes  No

Was a variance granted from the MDH for this Well?  Yes  No

USGS Quad Minneapolis South Elevation 895  
Aquifer. MTPL Alt Id:

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27143  
License Business Name Dependable Well Co.  
Name of Driller

**Report Copy**

Unique No. 00216165	MINNESOTA DEPARTMENT OF HEALTH <b>WELL AND BORING RECORD</b> <i>Minnesota Statutes Chapter 1031</i>	Update Date 1991/09/11
County Name Hennepin		Entry Date 1991/08/24
Township Name Township Range Dir Section Subsection 117 21 W 21 BBBCC	Well Depth 80 ft. Depth Completed 80 ft. Date Well Completed 1980/01/31	
Well Name P-111	Drilling Method	
Contact's Name P-111 ACROSS FM 6318 CAMB. LM ST. LOUIS PARK MN	Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No Fro ft. to ft.
	Use	
	Casing Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> N Hole Diameter	
	Casing Diameter Weight(lbs/ft) 0 in. t 77 ft	
<b>GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO</b>	Screen Y Open Hole From ft. to ft.	
FINE TO COARSE SILTY SA BROW B-C 7	Make Type	
CLAYEY SAND BRN-B 7 9	Diameter Slot Length Set Fitting	
SILTY SAND CLAY, SOME S BROW A 9 13	0 10 2 77 ft. to 79 ft	
FINE TO COARSE SILTY SA BROW B-C 13 20	Static Water Level ft. from Date	
FINE TO COARSE SAND AN BROW C-D 20 34	<b>PUMPING LEVEL (below land surface)</b> ft. after hrs. pumping g.p.m.	
SILTY CLAYEY TILL AND SA GRAY B-C 34 36	Well Head Completion Pitless adapter mf Model Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade(Environmental Wells and Borings ONLY)	
FINE TO COARSE SAND AN GRAY B-C 36 60	Grouting Information Well grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No	
SILTY CLAYEY SAND RED-B 60 62		
SILTY SAND RED-B C-D 62 67	<b>Nearest Known Source of Contamination</b> ft. direction type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No	
CLAYEY SAND RED-B D-E 67 80	Pump <input type="checkbox"/> Not Installed Date Installed Mfr nam Mode HP 0 Volts Drop Pipe Length ft. Capacity g.p.m Type	
WEATHERED PLATTEVILLE E 80 80	Any not in use and not sealed well(s) on property? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Was a variance granted from the MDH for this Well? <input type="checkbox"/> Yes <input type="checkbox"/> No	
USGS Quad Minneapolis South Elevation 902 Aquifer: Alt Id:	<b>Well CONTRACTOR CERTIFICATION</b> Lic. Or Reg. No. License Business Name Name of Driller	

**Report Copy**

Unique No. 00206444	MINNESOTA DEPARTMENT OF HEALTH <b>WELL AND BORING RECORD</b> <i>Minnesota Statutes Chapter 1031</i>	Update Date 1991/09/11
County Name Hennepin		Entry Date 1991/08/24
Township Name Township Range Dir Section Subsection 117 21 W 16 CDBCDA	Well Depth 475 ft. Depth Completed 475 ft. Date Well Completed 1950/08/20	
Well Name MINNESOTA RUBBER CO.	Drilling Method	
Contact's Name MINNESOTA RUBBER CO. 3630 WOODDALE AV ST. LOUIS PARK MN	Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No Fro ft. to ft.
	Use Industrial	
	Casing Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> N Hole Diameter	
<b>GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO</b>	Casing Diameter Weight(lbs/ft)	
GRAVEL 111	8 in. t 211 ft	
SANDSTONE 111 208	6 in. t 288 ft	
SHALE 208 228	0 in. t 0 ft	
SANDSTONE 228 235		
SHALE 235 237	Screen Open Hole From ft. to ft.	
SANDSTONE 237 276	Make Type	
DOLOMITE 276 397		
SANDSTONE 397 475	Static Water Level 84 ft. from Land surface Date 1950/08/20	
	<b>PUMPING LEVEL (below land surface)</b> 98 ft. after hrs. pumping 300 g.p.m.	
	<b>Well Head Completion</b> Pitless adapter mf Model Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade(Environmental Wells and Borings ONLY)	
	<b>Grouting Information</b> Well grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	<b>Nearest Known Source of Contamination</b> ft. direction type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	<b>Pump</b> <input type="checkbox"/> Not Installed Date Installed Mfr nam Mode HP 0 Volts Drop Pipe Length ft. Capacity g.p.m. Type	
<b>REMARKS, ELEVATION, SOURCE OF DATA, etc.</b>	Any not in use and not sealed well(s) on property? <input type="checkbox"/> Yes <input type="checkbox"/> No	
6 INCH CASING BEGINS AT 184 FT. CASING: 008 TO 0211;006 TO 0288.	Was a variance granted from the MDH for this Well? <input type="checkbox"/> Yes <input type="checkbox"/> No	
USGS Quad Minneapolis South Elevation 915 Aquifer: MTPL Alt Id: 63	<b>Well CONTRACTOR CERTIFICATION</b> Lic Or Reg. No. 27246 License Business Name <u>Renner Max Well Co.</u> Name of Driller	

**Report Copy**

Unique No. 00216082	MINNESOTA DEPARTMENT OF HEALTH <b>WELL AND BORING RECORD</b> <i>Minnesota Statutes Chapter 1031</i>	Update Date 1991/09/11
County Name Hennepin		Entry Date 1991/08/24
Township Name Township Range Dir Section Subsection 117 21 W 20 ABDBDC	Well Depth 105 ft. Depth Completed 105 ft. Date Well Completed 1955/12/29	
Well Name BLACK TOP SERVICE WELL	Drilling Method	
Contact's Name BLACK TOP SERVICE WELL CAMBRIDGE ST ST. LOUIS PARK MN	Drilling Fluid	Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No Fro ft. to ft.
	Use Commercial	
	Casing Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> N	Hole Diameter
<b>GEOLOGICAL MATERIAL COLOR HARDNESS FROM TO</b>	Casing Diameter Weight(lbs/ft)	
CLAY & SAND BROW 31	3 in. t 84 ft	
SAND BROW 31 40		
CLAY DARK 40 60		
SAND & CLAY BROW 60 73		
SAND BROW 73 78		
LIMEROCK & GRAVEL 78 84		
SHALE GREE 84 85		
SANDROCK HARD H 85 105		
	Screen N	Open Hole From 84 ft. to 105 ft.
	Make	Type
	Static Water Level 25 ft. from Land surface	Date 1955/12/29
	<b>PUMPING LEVEL (below land surface)</b> 27 ft. after hrs. pumping 15 g.p.m.	
	<b>Well Head Completion</b> Pitless adapter mf Model Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade(Environmental Wells and Borings ONLY)	
	<b>Grouting Information</b> Well grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	<b>Nearest Known Source of Contamination</b> ft. direction type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Pump <input type="checkbox"/> Not Installed Date Installed Mfr nam Mode HP 0 Volts Drop Pipe Length ft. Capacity g.p.m. Type	
	Any not in use and not sealed well(s) on property? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Was a variance granted from the MDH for this Well? <input type="checkbox"/> Yes <input type="checkbox"/> No	
USGS Quad Minneapolis South Elevation 888 Aquifer: MTPL Alt Id:	<b>Well CONTRACTOR CERTIFICATION</b> Lic. Or Reg. No. 27015 License Business Name Renner E.h. & Sons Name of Driller	

**Report Copy**

Unique No. 00216081

County Name Hennepin

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 1991/09/11

Entry Date 1991/08/24

Township Name Township Range Dir Section Subsection  
117 21 W 20 ABDBDC

Well Depth Depth Completed Date Well Completed  
280 ft. 280 ft. 1956/01/26

Well Name BLACK TOP SERVICE WELL

Drilling Method

Contact's Name BLACK TOP SERVICE WELL  
CAMPBRIDGE ST  
ST. LOUIS PARK MN

Drilling Fluid Well Hydrofractured?  Yes  No  
Fro ft. to ft.

Use Commercial

Casing Drive Shoe?  Yes  N Hole Diameter

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
GRAVEL	BROW			23
CLAY & SAND & GRAVEL	BROW		23	34
SAND & CLAY	BROW		34	65
LIMESTONE	BLUE		65	72
GRAVEL	DARK		72	81
GRAVEL & LIME	DARK		81	86
SHALE	GREE		86	87
SANDROCK	WHITE		87	191
SHALE	WHT-R		191	210
SANDROCK	WHITE		210	230
SANDROCK	BLACK		230	251
SHAKOPEE			251	280

Casing Diameter Weight(lbs/ft)  
6 in. t 212 ft

Screen N Open Hole From 212 ft. to 280 ft.  
Make Type

Static Water Level 24 ft. from Land surface Date 1956/01/26

PUMPING LEVEL (below land surface)  
30 ft. after hrs. pumping 100 g.p.m.

Well Head Completion  
Pitless adapter mf Model  
Casing Protection  12 in. above grade  
 At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted?  Yes  No

Nearest Known Source of Contamination  
ft. direction type  
Well disinfected upon completion?  Yes  No

Pump  Not Installed Date Installed Y  
Mfr nam DEMING  
Mode HP 3 Volts  
Drop Pipe Length 45 ft. Capacity g.p.m  
Type T

Any not in use and not sealed well(s) on property?  Yes  No

Was a variance granted from the MDH for this Well?  Yes  No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27015

License Business Name Renner E.h. & Sons

Name of Driller

REMARKS, ELEVATION, SOURCE OF DATA, etc.

WELL IS OUT OF SERVICE

USGS Quad Minneapolis South Elevation 888

Aquifer: MTPL Alt Id:

Report Copy